

# MARINE RECORD

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## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and to improve the character of the service rendered to the public.

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## SHIPBUILDING.

Returns to the Bureau of Navigation show that during the first nine months of the current fiscal year, ended March 31, 1902, there were built in the United States and officially numbered 949 vessels of 245,068 gross tons. For the corresponding period of the previous fiscal year the figures were 753 vessels of 246,973 gross tons. These figures do not include canal boats and unrigged barges.

A gain of about 8,000 tons on the Atlantic seaboard is offset by losses of about 5,000 tons on the lakes, 3,000 tons on the Pacific and 2,000 tons on western rivers.

Of the nine months' construction only 57 vessels are over 1,000 gross tons each, aggregating, however, 169,566 tons, or 70 per cent of the total tonnage.

Of these large vessels the Great Lakes have built 22 steel steamers of 84,323 tons. Two of these, Watson and Buckman, of 1,820 tons each, are banana steamers for West India trade, one, Hugoma, of 2,182 tons, is for the Porto Rican trade, and one, Minnetonka, of 5,270 tons, is to be cut in two to pass the Canadian canals, and then rejoined for ocean trade.

The seaboard has built 10 steel steamers of 41,204 tons, of which the largest is Korea, 11,276 tons, a Pacific mail steamer for trade from San Francisco, via Honolulu, to Hongkong, with possible extension to the Philippines. One Nevada, 4,408 tons, is for the New York-Hawaiian trade. One, Pathfinder, 2,792 tons, is for the Porto Rican trade. One, J. M. Guffey, 2,520 tons, is for the Texas petroleum trade. The others are for the usual coasting trades.

Large schooners number 19, of 32,757 tons, all wooden except Providence, 1,651 tons, built of steel at Camden, N. J.

Six square-rigged vessels include the two Bath built steel ships William P. Frye and Atlas, and four wooden barkentines built on the Pacific, in all, 11,282 tons.

The advanced construction of vessels launched or soon to be launched indicates that the total construction for the year will somewhat exceed that of the fiscal year 1901. Contracts for new work are, however, less than a year ago.

## A GREAT ARMOR PLATE WORKS.

Work has been started by the Carnegie Steel Co., at the Homestead works, enlarging the armor plate department. The undertaking not only involves the building of an addition, but the practical reconstruction of the whole of the present plant. The remodeled armor plate works will occupy the present site and adjacent territory. It will cover nearly three times as much ground as now, and will cost nearly \$8,000,000. The new plant, it is said, will rival the great works of Krupp, at Essen Germany, in size. A new pattern making and carpentry department is being erected with a fireproof building for the storage of the costly patterns. A great armor plate machine shop will be erected. The present armor plate machine shop will be transformed into a protective deck department, which

does not now exist at Homestead. The small press which is now in the forging department will be moved to the protective deck department. The removal of this press will make room for a new one, which will have a maximum capacity of 12,000,000 pounds and will be the greatest squeezing machine in America. Work has been started on the Harveyizing department. It will be made double its present size, and a number of new furnaces will be installed.

## OUR NEW NAVY.

The American navy has undergone a remarkable transformation in the last generation. The "new navy" had its beginning in 1882, when, on February 1 of that year, Secretary Hunt submitted to Congress the minority report of the advisory board, appointed on June 29, 1881, upon the condition of the navy and the plans for building steel and iron vessels of modern type. Since the war with Spain the navy has risen by leaps and bounds, and has actually been almost quadrupled in the last four years. No such progress has been achieved by any other navy; in fact, the advance made by other big naval powers sinks into insignificance beside the stupendous development in the United States. In 1880 the appropriation amounted to about \$12,000,000, in 1887 they were about \$15,000,000, and it had not passed much beyond \$20,000,000 when, in 1898, came the war with Spain. The present Congress is asked for about \$100,000,000 for the navy, but a large proportion of this amount is asked for the construction of new vessels and the continuance of work on those under construction.

## RUSSIA WILL BUILD ALL OF HER SHIPS.

It is stated that the Russian Government has decided that, regardless of cost, all government orders shall henceforth be placed at home. Battleships and cruisers must be built in Russian shipyards, by Russian workmen, and with Russian materials. It is estimated that this system will increase the naval budget 50 per cent, and probably cause a deterioration in the workmanship of the vessels.

The Russian council of Russian navigation has formulated a scheme for promoting shipbuilding loans free of interest, for twenty years to the amount of one-half the value of the ships on the condition that the vessels be owned by Russians, built by Russia and constructed entirely of Russian materials.

Unless it can actually be demonstrated that an article cannot be produced in Russia in the future, it will be bought at home at whatever price is necessary. The government argues that such a policy, though costly, will be justified on the score of national protection, just as the maintenance of the army and navy is justified.

## THE DRAINAGE CANAL LIABLE.

The liability of the sanitary district of Chicago for loss to vessels on account of its control of the Chicago river, has been judicially determined by Judge Kohlsaat in two decisions just made in the United States district court. The first was known as the steamer Curry case. That ship stuck fast in the Wisconsin Central railway bridge, near Taylor street, owing to a cofferdam which the sanitary district had placed in the channel. The loss to the Curry was about \$1,400, and the sanitary district will have to pay it on the grounds that it was not maintaining a channel full forty-eight feet wide in accordance with the orders of the Secretary of War.

In the other case, the I. Watson Stephenson was the steamer. One dark night some two years ago, the Stephenson steamed up the river and started to go through the north draw of the Ashland avenue bridge, as the captain had done many times before. No one warned him that the sanitary district had been dredging out the south draw of the bridge and had dumped the refuse into the north draw. The result was that the Stephenson went aground, and was then carried around by the current until she reached clear across the river. By the time the ship was freed and repair bills were made, an expense of some \$5,000 was incurred, and this amount Judge Kohlsaat says the sanitary district must pay.

The two decisions, as fixing the rights of vessel owners in Chicago river while the channel is being deepened and widened, are decidedly important, particularly as this work will take several years more before it is completed.

## CONCERNING PILOT PAPERS.

The Littlefield bill, providing for a revision of the statutes relating to pilots of sailing and steam vessels, has attracted considerable attention in the marine community. It is as follows:

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that section forty-four hundred and forty-two of the revised statutes, be and is hereby amended by adding thereto the following:

"Whenever the master or mate of a sailing vessel of the United States claiming to be a skillful pilot, offers himself for a license, the inspectors shall make diligent inquiry as to his character and merits, and if satisfied from personal examination of the applicant, with the proof that he offers, that he possesses the requisite knowledge and skill, and is trustworthy and faithful, they shall grant him a license for the term of five years to pilot any such vessel within the limits prescribed in the license; but such license shall be suspended or revoked upon satisfactory evidence of negligence, unskillfulness, inattention to the duties of his station, intemperance, or the willful violation of any of the provisions of this title."

Sec. 2—That section forty-four hundred and forty-four of the revised statutes be and is hereby amended to read as follows:

"Sec. 4444—No State or municipal government shall impose upon pilots of steam vessels any obligations to procure a State or other license in addition to that issued by the United States, or any other regulation which will impede such pilots in the performance of the duties required by this title; nor shall any pilot charges be levied by any such authority upon any steamer piloted as provided by this title, nor upon any vessel of the United States employed in the coastwise trade being towed into or out of any port of the United States by a steam vessel under command of a pilot licensed for such port under the laws of the United States, and in no case shall the fees charged for the pilotage of any steam vessel exceed the customary or legally established rates in the State where the same is performed. Nothing in this title shall be construed to annul or affect any regulations established by the law of any state requiring vessels entering or leaving a port in any such State other than otherwise steam vessels to take a pilot duly licensed or authorized by the laws of such State or of a State situate upon the waters of such a State."

Sec. 3—That section forty-two hundred and thirty-seven be and is hereby amended to read as follows:

"Sec. 4237—No regulations or provisions shall be adopted by any State which shall make any discrimination in the rate of pilotage or half pilotage between vessels sailing between the ports of one State and vessels sailing between the ports of different States, or any discrimination against vessels propelled in whole or in part by steam, or against national vessels of the United States; and all existing regulations or provisions making any such discrimination are annulled and abrogated."

Sec. 4—That this act shall take effect six months after its passage.

## NEW LINE OF STEAMERS.

J. J. Lynn, of Port Huron, has just returned from New York, where he took part in the organization of a new steamship company, to operate on the Pacific ocean. The name of the new line has not yet been selected, but has a capitalization of \$1,000,000 and has already closed a contract at Newport News for a vessel 240 feet keel, 40 feet beam, and 19 feet depth of hold, and a carrying capacity of 1,500,000 feet of redwood. This is the first of three boats which the company will build.

It will have 1,500 indicated horse-power. Lake ship-builders were given an opportunity to bid on its construction, but on account of the crowded condition of the yards and their inability to turn out a boat before late next fall, the ocean concern was given the contract. The boats, which will carry California redwood from San Francisco to Eureka, where it will be carved and manufactured into Japanese art work, will be controlled by the company, which is incorporated by John B. Claffin, of New York; Gen. Thomas H. Hubbard, representing the Hopkins estate, of New York, A. B. Hammond, of San Francisco; and Francis J. Leggett, of New York.



**BUFFALO.***Special Correspondence to The Marine Record:*

The Sundry Civil Appropriation bill, as reported to the House last week, contains an item of \$200,000 for continuing the improvements on Buffalo harbor.

The steamer C. W. Moore, recently bought by the Graham & Morton line to ply between St. Joseph and Chicago, has been rebuilt during the past winter at Milwaukee. Among other things ten staterooms were added.

The Montgomery Door & Box Co. has purchased the entire lumber, lath and shingle stock of the Clark, Swan & Jackson Co., of Tonawanda. The sale comprises about 7,000,000 feet of lumber and the price paid is said to approximate \$150,000. A manager will be sent to Tonawanda to sell part of the lumber and the rest will be brought to Buffalo to be disposed of.

The Iroquois Iron Co., of South Chicago, which received 200,000 tons of ore last season, has increased its capacity fully one-third. To provide for this increase the company has chartered the steel steamers Kennebec and Kanawha. The latter is now nearing completion at Port Huron. The steamers Mercur and Packer, owned and operated by the company, will probably be put on the run between Escanaba and Lake Erie ports and sold later.

It is understood that the Lake, Michigan & Lake Superior Transportation Co. will this year establish a 60-hour service between Chicago and Duluth with the two freight and passenger boats Peerless and City of Traverse. The lessening of the time will be achieved by cutting out many of the stops that were heretofore made. The Osceola and Jay Gould will make the local points and the other two will conduct a through business. This line enjoys a good passenger business during the summer months and the prospects at present are they will have more offered this year than ever before.

Steamers operated by the Barry Bros. Transportation Co. are to be equipped with a system for wireless telegraphy and three exchange stations are to be established at Chicago, Milwaukee and Marinette. The test is to be made early in April and if successful equipment for the service will immediately be installed on the steamers Empire and Badger State, which will be on the West Shore run. The company operates six steamers and the system is to be in use on all. It is expected that the steamers being remodeled here will be ready for service April 18, and the test will then be made. The Barry company will be the first to install wireless telegraphy on Lake Michigan steamers.

The ferry boat used for communication between Buffalo and Fort Erie is said to be very old, and assuredly is an unattractive craft. Presumably it is sound enough for the business, else the Government would not permit its operation. But several occurrences have suggested the possibility of a disaster, against which proper provision is not apparent. While crossing the Niagara river a few days ago, when a high wind prevailed, the boat was struck by an ice floe and made unmanageable by damage to the rudder. Immediately it began to drift down the stream, threatening collision with the piers of the international bridge, at which structure the current is extremely strong. Panic is said to have reigned among the passengers, but happily control of the boat was regained in time to avert a possible catastrophe. Several times this ferry steamer has been endangered in a precisely similar manner. The next time may not result so fortunately. It would seem only a reasonable and necessary precaution to require the ferry company, when the ice is running down the river, to have a tug with steam up stationed near the bridge, ready to give assistance if it should be needed. Such risks as that of Sunday are altogether too great.

It is now pretty certain that the Northwestern Steamship Co.'s four steel steamers, which ran between Chicago and Europe last season, will not come to the lakes again, at least not this season. They have been in the Atlantic coast trade since they left here last fall, plying between Fernandina, Fla., and Newport News, in the coal and lumber trade. Charles Counselman, president of the company, is very well satisfied with the showing made by the boats since they were taken from the lakes, and has made arrangements to employ two of them, the Northman and Northtown, in the coal trade between Newport News and Boston during the summer. The other two steamers, Northeastern and Northwestern will engage in the general coasting trade. This means that Chicago's European line has been abandoned. The experiment is said to have cost the promoters dearly. Marine men held from the start that the boats would never pay on the route they were started on. They are seaworthy enough and perhaps able

to withstand the most trying weather. These qualities have been thoroughly tested on the coast during the past winter. They are fast enough, too, but the drawback lies in the fact that they cannot be loaded deeply enough for harbors on the lakes. The boats are too heavy. With a full cargo they draw 21.10 feet of water, a depth which is to be found in very few harbors on the lakes, especially at this port, where vessels in the grain and coal trade find it difficult to operate on seventeen feet draught in the river. The big boats have had every advantage in the Southern trade, particularly in handling cotton. They are handy and can load such a cargo in one-fourth the time it takes the ordinary traders at those ports to do the work, and big money is to be made at the rates paid. They get plenty of business, as they can take it cheaper for these reasons than the others. The side ports with which each of the boats are provided make rapid dispatch possible, and they are also equipped with hatches, which are used exclusively by the ordinary ocean coaster in hoisting cargoes out of the hold.

**DETROIT.***Special Correspondence to The Marine Record.*

The Hecla Cement & Coal Co. has commenced dredging a slip 1,400 feet long and 150 feet wide at West Bay City. It will be deep enough to accommodate all lake boats and will be equipped with modern appliances for loading coal into vessels.

Capt. James Davidson, who bought the steamer Homer Warren and barge Ida Keith at auction recently, has sold both boats to Shannon & Carey, of Saginaw, Mich., and they will be run in the lumber trade between Georgian Bay, Bay City and Saginaw. A vesselman, who claims to know, says that Capt. Davidson simply acted as the agent for Shannon & Carey in the purchase of these two vessels.

Capt. Anthony May has spent about \$2,800 repairing the little freighter Emerald that drifted on Lake Huron last November with nothing to keep her afloat but her cargo of cedar poles. He says he will run her to Lake Superior April 10, in the lumber trade, and he believes her as safe as any big steel ship on the lakes. He says the same crew that hung onto the boat all night will be ready to ship again this season.

The steamer Bransford, building for W. A. Hawgood & Co., Cleveland, was launched at the Bay City yard of the American Ship Building Co. Wednesday afternoon. The Bransford will come out May 1. She is 434 feet over all, 414 feet keel, 50 feet beam and 28 feet deep. She will have triple expansion engines, with cylinders 22, 35 and 58 inches, with 40 inch stroke. She will have two Scotch boilers, which will be fitted with the Ellis & Eaves' draft. The Bransford will carry about 6,200 and will cost \$260,000.

The Sundry Civil Appropriation Bill reported to the House last week by the House committee on appropriations, contains the following items: For completing revenue cutter for St. Mary's river, \$37,500; for work on Detroit river channel improvements heretofore authorized and in excess of amount carried in River and Harbor Bill, \$135,500; for work on Hay Lake channel on improvements heretofore authorized and aside from river and harbor appropriation item, \$144,115; for range lights on channels where same cannot be maintained from American side, \$14,000.

Senator McMillan has made a favorable report, by direction of the committee on fisheries, on the bill to authorize the establishment of the biological station on the Great Lakes at some point in Illinois, Michigan, Wisconsin, Minnesota, Ohio, Pennsylvania or New York. The selection of the place where the station will be established is left to the fish commissioner. In his report Senator McMillan says: "The important commercial fisheries carried in these waters warrant the establishment of a laboratory at which the various biologic-economic problems connected with the prosecution and development of the fisheries may be studied. Such a station would be a valuable adjunct to the fish cultural work carried on by the government and the various states."

The plan of the government to build its own dredges and which is embodied in a bill which has already passed the House of Representatives, does not meet with favor among the dredging companies on the lakes, and they have taken steps to block the measure in the Senate. The dredge men will oppose the bill for three reasons. First, from the standpoint that it is unwise and not economical; second, that it is unnecessary on account of the excess of private equipment that can be had at low rates; and third, that it is an unjust invasion of a private industry and contrary to the American spirit.

Signs of activity were visible all along Detroit's water front this week. At the Oades' ship yard the Clergue yacht Siesta came off the ways, after being rebuilt at a cost of about \$10,000. She will leave for the "Soo" in about two weeks. The work on the D. & B. line steamers, Eastern States and Western States, has been pushed rapidly and the interior work is all that is left to be done. The Eastern States is expected to be ready for her trial trip about the middle of May. The two big C. & B. line steamers have been put into shape so as to start, but the ice conditions are such at the eastern end of Lake Erie,

they will probably not leave the Detroit dry-dock yards for a week or ten days. The City of Erie still has the brooms at her mastheads as a reminder of her victory over the Tashmoo.

Secretary Harry Barter, of the International Longshoremen's Association, recently received an application for membership in the I. L. A. from 50 Spanish dock workers of the city of Ponce, Porto Rico. "Talk about the new subjects of the United States not being progressive!" said Mr. Barter, smiling with pleasure. "What do you think of that? And that isn't all. This is the second one. We granted a charter to the dock workers of San Juan about a month ago, and there are more applications coming." It seems improbable that men so far away could reap any benefit from belonging to an association so distinctly a feature of the commerce of the Great Lakes, but Mr. Barter says that they at present get only 10 and 12 cents an hour, and the Longshoremen's Association will be able to make contracts for them with the New York vesselmen at 15 cents at once, and can do better later on. Copies of the laws of the I. L. A., translated into Spanish, are to be sent to Porto Rico with the charter that goes to Ponce.

**CHICAGO.***Special Correspondence to The Marine Record.*

From present indications the Scherzer Rolling Lift Bridge Co. will likely receive the contract for a new bridge to be built at Saginaw, Mich., shortly.

After submitting the matter to a referendum vote of all the branches around the lakes, the Seamen's Union has decided not to demand any advance over the wage scale paid to sailors on schooners and tow barges last season. The men on sailing vessels will receive \$2 per day and those on barges and steamers \$45 a month. With last winter's big cut of lumber to be transported to market, insuring good freight rates, and with no trouble in sight with the seamen or dock laborers, the prospects of a profitable season for the constantly diminishing fleet of sailing vessels are brighter than for several years. Secretary William Penje, of the local branch of the Seamen's union, reports that the resolution adopted by that organization allowing deckhands on steamboats to become members has been very well received by the latter and they are joining in large numbers. The broadening of the scope of the union is not with the idea of raising wages, but to endeavor to secure a better lot of men on the boats. Formerly steamboat captains have taken almost any men off the docks to serve as deck hands, and it is the aim of the union to provide competent sailors for the positions.

**PORT HURON.***Special Correspondence to The Marine Record.*

During the coming season the steamer Bielman, sold by the Stewart Transportation Co. to Port Huron parties, will tow the schooner Mary E. McLachlan. Capt. J. W. Montgomery will command the Bielman, and Capt. Maitland will sail the McLachlan.

It is understood that the Jenks Ship Building Co. has been negotiating for some time past for a site below the city limits and just east of Ravenswood on St. Clair river. It is said that options on all of the land with the exception of one small piece has been obtained.

**A DISAPPEARING RIVER.**

A recent report from C. T. Prall, one of the hydrographers of the survey, has reported the existence of a stream whose waters in the summer season entirely vanish mid-way in its course. The river is known as the Dry Fork, a small stream in Northwestern Utah, tributary to Ashley creek. About fourteen miles from its source in the Uinta mountain this stream reaches a large basin or sink, whose walls are from 75 to 100 feet high, except on the upstream side. The pool is apparently bottomless and the water in it revolves with a slow circular motion, caused either by the incoming waters or by the suction from below, or both. The only visible outlet to this pool is a narrow rock channel from which a little water flows, but is soon lost to sight a few hundred yards below. A measurement of the main stream just above the pool showed a volume of 96 cubic feet of water passing each second, but this entire flow disappears in the basin and the stream for miles below is perfectly dry. About seven miles below this interesting pool were found several springs, one of them in a large hole twenty-five feet in diameter and twenty feet deep, which at times are empty and again filled with water. It is thought that the water which disappears in the upper pool flows underground, deep below in the gravels, which form the bed of the stream, and in times of heavy rainfall appears again in the large springs below.

THE CHICAGO PNEUMATIC TOOL CO., Monadnock block, Chicago, will move into larger offices in the Fisher building, May 1. The company's sales in January were largely in advance of the monthly sales in 1901; those of February exceeded those of the previous month, and the sales for March showed a good increase over those for any preceding month in the year.



## DULUTH-SUPERIOR.

*Special Correspondence to The Marine Record.*

George M. Brush, traveling freight agent of the East-season.

The Merrill & Ring Lumber Co., of Duluth, are preparing for a 50,000,000 feet cut this season. They have 6,000,000 feet of logs in the ice at the mill left over from last

The coal roads are now moving soft coal to this port in large quantities and unless a strike should be declared in West Virginia, there will be plenty of lake coal to keep the vessels busy.

The Northern Navigation Co., of Ontario, Ltd., announces from the office of Vice President John J. Long, that Mr. A. B. Pratt is appointed assistant manager of the company, and that Mr. Wm. Askin is appointed assistant manager of the Northwest Transportation Co. of Sarnia.

Articles of incorporation of the Zillah, the Jenness, the Hopkins and the Goshaw Transportations companies have been filed in Duluth. The names of the incorporators in each case are Wayland W. Sanford, Herbert R. Spencer, and Frank A. Searle. Each company represents a line of lumber carriers, the owners of which have formed Minnesota corporations in order to enroll their boat property at Duluth and thus take advantage of the favorable vessel taxation laws which prevail in this state.

Capt. D. D. Gaillard, United States Engineer in charge of improvements on Lake Superior, has received 102 replies from vessel masters in the Lake Superior trade to his circular letter requesting information and suggestions regarding compass variations on this lake. Among other things they were asked if they considered a magnetic chart of the lake desirable or necessary. The consensus of opinion was that there is much local attraction at the western end of the lake, especially at Knife Island, and elsewhere along the north shore, causing an abnormal needle variation. Capt. Gaillard has referred the entire matter to the chief of engineers. A majority of the masters favored a magnetic chart.

It is reported here that what is believed to be a valuable find of iron ore has been made near Koochiching, on Rainy River, and that S. S. Curry, of Detroit, has taken an option to buy a large tract embracing the find for \$1,500,000. No details of the transaction are available, though several Duluth men are interested in iron ore properties in that region. It could not be definitely stated whether the ore strike near Koochiching was on the Minnesota or the Canadian side, though up to the present, as far as known, no iron has been reported in that section except on the Canadian side. Some Duluth iron ore men have sent agents into the country around Koochiching. Many of them are experts at the work and something of importance may be developed during the present year. The reports of the discovery of good iron ore in the Rainy River district are persistent. They were first heard of last fall and everybody that comes down from the international border has something to add to the stories.

The arrival of a boat from a lower lake port this week will establish a new record in Great Lakes navigation, as far as Duluth is concerned. Up to this year the first boat in was April 12, 1878. That winter was very similar to the one just passed. Last year the first boat was the Osceola on May 2. The tug E. J. Maxwell had arrived a few days before that. Local boats, however, had been running up the north shore before that time. The E. T. Carrington cleared on April 16. May 2 is set down by the marine statisticians as the average date of opening of inter-lake navigation. At the present time there is no ice in the lake and but little in the bay. What there is from six to twenty inches thick and it is honey combed and easily crushed. April 1, 1901, the ice field extended for eight miles down the lake and was thirteen inches in thickness. The present year the ice never froze more than 10½ inches. In the harbor it was twenty-three inches thick and covered the entire bay. It was March 27 before it disappeared.

ern Minnesota road for the past five years, has been appointed assistant general freight and passenger agent of the White Line Transportation Co. Mr. Brush recently returned from Chicago, where he met Capt. W. H. Singer, president and general manager of the White Line Co., and where the arrangements were made. Mr. Brush is one of the best known transportation agents in the Northwest and his wide acquaintance in all branches of the field which he will occupy will be of special value to him. The appointment will be effective April 1. He will be the active outside man of the White Line Co., which will cut a more important figure this season than ever before in the freight and passenger business of the western end of Lake Superior. It is understood that Mr. Brush's duties will also extend to the Lake Michigan & Lake Superior Transportation Co., the Duluth-Chicago line, but his title at present applies to the White Line Co. only. His duties for the past five years as traveling freight agent of the Eastern Minnesota road have brought him considerable experience with the steamboat business, the Eastern being a lake and rail line, with the Northern Steamship Co. as a connection.

Duluth people are up in arms against the Northern Steamship Co. for abandoning that route. The Duluth News-Tribune states that the business men of that city will make an appeal to the management of the company to continue their Lake Superior service. When the Northland and North West were taken off last season the steamer Miami was brought to Lake Superior to run between Duluth and Mackinac, making two round trips a week and connecting with the white boats at the latter point. It has been expected that some other boat would be put on to provide the same service this season. Manager Lowrie is quoted as saying that the reason the Lake Superior passenger business of the company has been abandoned is that they have been unable to get a suitable boat. Duluth people are inclined to be skeptical about the report. They think that the Lake Superior passenger business, which is growing every year, would not be dropped by the Hill interests after assisting for 10 years in building it up. Lake Superior is the most attractive part of the lake system for tourists. The Northern Steamship Co. in running between Chicago and Buffalo can offer its patrons nothing except a trip from one warm body of water to another. The difficulty last season with the Lake Superior end of the Northern Steamship Company's passenger business was that the big white boats running between Chicago and Buffalo were often behind time at Mackinac. As the Miami was supposed to wait for one or the other of those boats she was frequently thrown off her schedule and everybody was disappointed. But the white boats are in shape this year to make close connections and it is thought that a Lake Superior connection with a single boat could be worked successfully. It would seem that there will be room for another passenger boat in the Lake Superior trade if the Northern Steamship Co. pulls out.

## CLEVELAND.

*Special Correspondence to The Marine Record.*

John Marron, agent for the Erie & Western Transportation Co., announces the departure of their first boat to leave Cleveland for Lake Superior ports April 15th, connecting with Detroit, Sault Ste. Marie, Marquette, Houghton, Hancock, Dollar Bay, West Superior and Duluth and other points.

Two steamers will be launched at the yards of the American Ship Building Co Saturday. At South Chicago the steamer Luzon, building for E. D. Carter, of Erie, will be dropped into the water and the Steel King, the last of the steamers building for Mr. J. C. Gilchrist, will be launched at Lorain.

The entire fleet that wintered at Conneaut will weigh anchor and leave for upper lake ports this week. The steamers are the Ellwood, Bunsen, Seimens, Malletoa, Saxon and Matoa. The barges are the Marsala, Roebing, and Nasmyth. The steel tug America, of Erie, will be here all summer, replacing the Scott.

The following meteorological observations are furnished by the office of the United States Weather Bureau, for the week ending April 2: Prevailing wind direction for the week, west; highest velocity, 56 miles from the west on the 30th; mean temperature for the week, 44 degrees; highest temperature 64 degrees on the 27th; lowest, 30 degrees on the 31st. Sunrise and sunset data computed for local time: April 3rd sun rises, 5:40, sets, 6:28; April 6th sun rises, 5:35, sets, 6:31; April 9th, sun rises, 5:29, sets, 6:34.

The Sundry Civil Appropriation Bill which was reported to the House last week carries these appropriations for Cleveland: Marine hospital boiler plant, \$6,000; continuing harbor improvements, \$107,000. Appropriations made for other Lake Erie ports are: Continuing harbor improvements at Toledo, \$223,000; continuing improvements at Lorain harbor, \$300,000; continuing improvements at Ashtabula harbor, \$200,000. Included in the bill are a number of items pertaining to improvements along the Great Lakes and connecting channels. The most important is an appropriation of \$150,000, recommended for investigating the lake levels and for re-surveying, and printing charts of the Great Lakes and northwestern lakes.

The agreement between the longshoremen and the dock managers is now all settled and the conference for this year is at an end. This is the best agreement for the workmen that has ever been granted in the history of the chain of lakes. For the first time in fifty years, if not longer, the dock men will work less than twelve hours a day, in addition to which there are little advances over last year's scale. The agreement is doubly important when it is known that it affects 20,000 men and that it entails an outlay for the coming season to the workmen alone of \$12,000,000, a sum which few, if any, had any idea was spent for this service.

A meeting of the tugmen was held Wednesday afternoon, after which an official of the association said that the men would not return to work unless their demands were granted. "We are not asking for an advance of wages," he said, "but we want a reduction in hours. There is not a class of men in any trade that puts in as much time as we do. I don't think," he said, "that we are unreasonable in wanting to be off twelve hours out of forty-eight, and that is all we are demanding of the company." The official referred to said that the men would be on

hand and ready to take out tugs in cases of emergency, but no work would be done until the officials of the towing company accepted their proposition.

The big freight steamer building at the yard of the Jenks Ship Building Co., at Port Huron, will hail from Cleveland. Capt. W. W. Brown and other parties have purchased the steamer from the ship building company. A new company will be organized to operate her with Capt. Brown as general manager of the company. The price paid for the new ship was not given out. The steamer is 440 feet over all, 420 feet keel, 50 feet beam and 28 feet deep. She will have triple expansion engines and three Scotch boilers. The new boat, which will come out August 1, will carry about 6,300 tons, on eighteen feet of water. She will probably be named after an old-time vesselman. This deal gives Capt. Brown six new steel steamers that will come out this season. He will also handle the steamer George Presley and the schooner Nellie Redington.

Another steamer was added to the big fleet of Capt. John Mitchell last Saturday afternoon, when the James Gayley was set afloat in the slip of the old Globe ship yard of the American Ship Building Co. The new steel steamer is one of the type that has become so popular during the last year, and is about the size that most vessel owners have been ordering. She is named after the head of the ore department of the United States Steel Corporation. The Gayley has a 436 feet keel, 50 feet beam, and 28 feet molded depth. She will have triple expansion engines and steam will be furnished by two Scotch boilers. Her finishings will be in accordance with the type of Mitchell boats, therefore of the best. She was christened by Miss Mary Gayley, daughter of the man after whom the boat was named. With her on the stand were Miss Lucy Lybroker, a guest of Miss Mitchell, and Miss Mabel Mitchell, Mrs. John Mitchell, Miss Shepherd, Dr. H. A. Shepherd, Frank Seither, James McBryer, J. F. Wedow, J. R. Mills, Capt. John Mitchell, Capt. Alfred Mitchell and E. C. Collins.

At the annual meeting of the Wellman-Seaver Engineering Co., action was taken to change the name of the corporation to the Wellman-Seaver-Morgan Engineering Co. The desire was to give proper recognition by this change to the ability and services to Thos. R. Morgan, who for several years has been secretary of the company. Mr. Morgan, before his connection with the Wellman-Seaver Co., was general manager of the Morgan Engineering Co., at Alliance, O. He has had a wide experience in engineering lines, and his connection with the Wellman-Seaver Co. has contributed much to the marked growth and prosperity of that company. The title of Mr. Morgan has also been changed to secretary and works manager. He will have direct charge of the large manufacturing plant of the company now nearing completion. The list of officers, the others remaining as before, is as follows: S. T. Wellman, president; J. W. Seaver, vice president; C. H. Wellman, general manager; J. R. Morgan, secretary and works manager; A. D. Hatfield, treasurer; C. W. Comstock, purchasing agent and assistant secretary.

## BOND ISSUE OF THE STEEL CORPORATION.

At a meeting in New York April 1, the directors of the United States Steel Corporation formally approved the conversion plan under which it is proposed to retire preferred stock to the amount of \$200,000,000, upon which dividends are paid at the rate of 7 per cent. per annum, and issue bonds to a total of \$250,000,000, with interest fixed at 5 per cent. May 19 was fixed as the date upon which the project will be submitted to the shareholders.

The directors also issued a statement showing that the earnings of the corporation for the first year of its existence, which ended on March 31, with the last month estimated, reached a total of \$111,067,195, being as follows by months: April, 1901, \$7,356,744; May, \$9,612,349; June, \$9,394,747; July, \$9,580,151; August, \$9,810,880; September, \$9,272,812; October, \$12,205,774; November, \$9,795,841; December, \$7,758,298; January, 1902, \$8,901,016; February, 1902, \$7,678,583; March, 1902 (estimated), \$9,700,000. The statement said: "The net earnings were arrived at after deducting, each month, the cost of ordinary repairs, renewals, and maintenance of plants. Of the net earnings sinking funds on bonds and depreciation and reserve funds claimed \$15,399,695; interest on bonds, \$15,200,000; and dividends, \$56,017,783, while the undivided earnings were \$24,449,717.

Judge E. H. Gary, chairman of the board, stated that the extra \$50,000,000 of bonds above the \$200,000,000 to be used for retirement of preferred stock would give the corporation a working capital of about \$105,000,000 to be used in any way that the directors might deem best. He would not say that this implied the acquisition of any new plants. No preferred stock is to be retired without the consent of the holder.

"Why a Truscott Boat is the Best", is the title of a neat booklet being distributed by The Truscott Boat Manufacturing Co., St. Joseph, Mich. It also refers to the special features of the gas engine which this company manufactures. The catalogue is very fully illustrated and well worth a perusal by anyone interested in gas engines and launches.



## STATISTICS.

The manufacturers of the country are now importing more than a million dollars' worth of materials for their workshops every day in the year, and are exporting more than a million dollars' worth of their finished product each day. The imports of manufacturers' materials in the 8 months ending with February, 1902, were, according to a statement just issued by the Treasury Bureau of Statistics, \$270,202,774, and the exports of finished manufactures during the same period were \$257,907,430. Thus in 243 days of the fiscal year the manufacturers have imported 270 million dollars' worth of material, and export \$257,000,000 worth of their finished product, thus averaging more than \$1,000,000 of both imports and exports for every day of the fiscal year up to the beginning of the present month. The importation of manufacturers' materials has been greater in the eight months just ended than in the corresponding period of any preceding year.

The following table shows the total imports of manufacturers' materials and exports of manufactures in the eight months ending with February in each year during the last few years. It will be seen that within less than a decade the importation of manufacturers' materials has more than doubled, and that the exportation of manufactures has also more than doubled.

Eight months ending with February.	Imports of Manufacturers' Materials.	Exports of Manufactures.
1894.	\$130,171,766	\$123,288,257
1895.	169,868,576	116,828,996
1896.	221,875,758	144,062,141
1897.	159,533,502	174,180,920
1898.	178,611,860	180,606,072
1899.	170,959,002	206,822,334
1900.	253,231,318	268,537,972
1901.	213,077,923	269,866,656
1902.	270,202,774	257,907,430

On the export side of the account manufacturers are showing an improved record. The Bureau of Statistics reports of exports of manufactures during both January and February, show a decided increase over the corresponding months of 1901 the gain in the two months in question being more than 3 million dollars over the same months of the preceding year. The exports of manufactures in the 28 days of February, were \$31,740,842, against \$30,302,592 in February 1901. In practically all articles except iron and steel there has been a complete recovery from the temporary check in exports of manufactures noted a few months ago. Copper exports for instance, in February of this year were \$4,210,861, against \$3,155,774 in February 1901; though for the eight months the total still stands 8½ millions below that of the same period of the preceding fiscal year. Exports of refined mineral oils for the 8 months ending with February 1902, are \$44,689,987, against \$41,880,021 in the corresponding months of the preceding year. Even iron and steel exports show a marked improvement, the total for the month of February being \$7,358,296, against \$7,259,218 in February 1901, and \$8,549,157 in February 1900. For the 8 months ending with February the exports of iron and steel manufactures are \$64,668,424, against \$81,575,685 in the corresponding months of the preceding year. Manufactures of cotton show an increase of nine millions over the corresponding period of last year; manufactures of leather, an increase of 2 millions; paraffin, which a few months ago showed a decrease, now shows a gain of nearly 2 millions over the corresponding months of last year, while in nearly all of the other important manufactured articles exported there are gains over last year. The total exports of manufactures fall for the 8 months ending with February but 12 millions below those of the same months of last year, while the fact that manufactures of iron and steel alone are 17 millions less than in the 8 months of last year shows that in other articles there has been a decided gain.

## NAVAL COALING STATIONS IN CUBA.

After a conference in Washington on March 25 among the President, the Secretary of War, General Wood and Senators Palma, Quesada and Tamaya, representatives of the Cuban Republic, it was agreed that the United States should withdraw its authority from Cuba on May 20, turning over the public property, funds and administrative machinery of the islands to the officials of the new Republican government.

One of the most important questions awaiting settlement by treaty between the Cuban Republic and the United States is that of sites for naval coaling stations for the United States—one at Guantanamo and one at Cienfuegos, on the south coast, and one at Nipe Bay and one at Havana on the north coast of Cuba. President-elect Palma is quoted as favoring the cession of all of these sites except the one at Havana. The Cuban people, he declares, "will never consent to the location by the United States or any other foreign government of a naval station in the harbor of Havana." If the incoming administration adheres to the position taken by Senator Palma it may disarrange the program practically agreed upon by the naval authorities, which is said to include a coaling station at Havana as a matter of course. Two other matters of importance requiring early action are the adjustment of tariff relations between the two nations and a definition of the sovereignty of the Isles of Pines which, by the Cuban constitution, was specifically left to settlement by future treaty negotiations between Cuba and the United States.

## THE UNIVERSITY OF MICHIGAN.

The Department of Naval Architect and Marine Engineering in the University of Michigan, will soon be one of the best equipped schools of this kind in this country. Owing to the great increase in number of students in Engineering, the Regents of the University have decided to erect a new building which will be devoted exclusively to the technical branches of Engineering. Besides the usual class, drawing, and model rooms, it will contain large laboratories for Civil, Mechanical, Electrical and Marine Engineering. The last will consist of an experimental tank 300 feet long by 22 feet broad, and 10 feet deep. The models to be tested will be from twelve to fourteen feet in length. In connection with the tank there will also be a workshop containing machines for making models of ships and propellers.

The tank will prove of great value to the students as, apart from experiments relating to resistance and propulsion, many others such as those connected with stability, rolling, action of bilge keels, etc., can be investigated. Large class rooms, drafting rooms, model room, and mold loft will also be arranged for in the new building. The department is under the direction of Prof. Herbert C. Sadler.

## RESOLUTION OF CONDOLENCE.

At a meeting to take action upon the death of William H. Mack, held at the office of James Corrigan, Cleveland, after suitable remarks, the following was unanimously adopted as the expression by his associates of their appreciation of Mr. Mack, and regret at his untimely death:

"The startling information that William H. Mack had met death at the wreck of the schooner Wadena, on the Massachusetts coast, came with a shock to this community. He was active, energetic, and straightforward, and, though yet a young man, had begun to make his impress on the business of the Great Lakes, and there had already opened up before him a life of influence and usefulness. We had confidence in his integrity and judgment, and his marked hopefulness and ready sympathy, coupled with unusual energy, made him a valued and trusted friend, whose untimely loss we sincerely mourn. To his widowed mother, whose only son he was, and to his sister, we extend our deepest sympathy in their irreparable loss. May they be comforted beyond any earthly power to assuage so great a grief as theirs; and, be it

"Resolved, That we adopt the foregoing expression of our sense of loss and of our sympathy with the mother and sister, and that the same be spread upon the minutes and that the secretary forward a copy to his mother."

## THE IRON AND STEEL TRADE.

The entire steel trade is threatened with a general advance in prices because of the phenomenal requirements that are being presented from all points of the compass, says the Railway and Engineering Review. As heretofore stated, it is the determination of the managers to prevent a panicky advance. This they are doing; they will probably be able to hold their ground. Requirements for the coming year are now pretty well covered. There is the greatest possible scarcity of steel billets, Bessemer pig, structural material and merchant steel. There is an element of danger in all this, namely, the extraordinary capacity that is now being hurried forward and which is being projected. It looks from the common sense standpoint as though the anticipation of iron and steel requirements would be overdone. Projections of new steel works are heard of almost every week. The sounding and boring for ore lands is going on constantly and large ore areas have been recently added to known fields. The entire situation is full of interest and whatever comes or goes we may rest assured that in 1903 there will be a sufficient, and, in fact, an abundant supply of iron and steel material for all purposes.

## STATEMENT OF THE VISIBLE SUPPLY OF GRAIN

As compiled by George F. Stone, Secretary Chicago Board of Trade March 29, 1902.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	997,900	57,000	11,000		329,000
" afloat.....		84,000			
Chicago.....	6,478,000	4,591,000	560,000	929,000	148,000
" afloat.....	914,000	88,000	133,000	158,000	
Detroit.....	271,000	108,000	2,000	45,000	
Duluth.....	14,400,000	71,000	201,000	459,000	313,000
" afloat.....	511,000				
Port William, Ont..	4,586,000				
Milwaukee.....	735,000	262,000	122,000	25,000	113,000
Minneapolis.....	13,802,000	31,000	168,000	37,000	16,000
Montreal.....	55,000	9,000	217,000	22,000	62,000
Port Arthur, Ont..	275,000				
Toledo.....	66,000	793,000	435,000	155,000	
Toronto.....	51,000		16,000		22,000
On Canals.....	46,000	3,000	87,000	37,000	50,000
Grand Total.....	49,615,000	8,799,000	3,146,000	2,056,000	1,575,000
Corresponding Date, 1901.....	54,749,000	22,287,000	11,156,000	1,109,000	1,112,000
Increase for week.....				26,000	
Decrease " ".....	1,333,000	309,000	73,000		184,000

While the stock of grain at lake ports only is here given, the total shows the figure for the entire country except the Pacific Slope.

## NOTES.

JAS. L. ROBERTSON & SONS, New York, are distributing an attractive little dice box made entirely of celluloid, with a transparent cover. One of these souvenirs will be sent to any address upon receipt of six cents in stamps to cover the expense of transportation.

THE NEW YORK AND WESTERN TRANSPORTATION Co., of Albany, N. Y., have received permission to conduct a series of experiments on the canal, to demonstrate the feasibility and adaptability of the towing system known as the "Tone" system. It is an adaptation of the "chain" system of propulsion.

PREPARATIONS are being made for the refitting of Shamrock II. Work on the defeated British challenger was begun last Thursday in the Erie basin. Much secrecy is observed about the yacht but it is said that Sir Thomas Lipton intends to refit her and take her to the Great Lakes, via the St. Lawrence and the Welland canal.

MR. HENRY KONITZKY, formerly a superintendent for the Columbian Iron Works, now occupies a similar position with the Baltimore Dry Dock and Ship Building Co. Mr. Konitzky is a man of wide experience, having served with the William Cramp & Sons Ship and Engine Building Co., the Neafie & Levy Co., Harlan & Hollingsworth and the Newport News Ship Building Co.

ORDERS have been issued by the Secretary of the Navy directing that the naval yacht Mayflower, which has been out of commission for the past six months at the Brooklyn Navy Yard, be repaired and put in commission. The Mayflower is one of the finest yachts in the service, and it is said to be possible that it will be ordered to Washington to be used by the President and other officials of the government for cruises of inspection during the coming summer.

THE LOUISIANA PURCHASE EXPOSITION, to be held in St. Louis in 1903, has already placed contracts for electrical apparatus to supply 30,000 horse power. This power is to be used for the electric illumination chiefly, and will provide for a lavish display. From present plans it looks as if over 300,000 incandescent lamps would be used to decorate and illuminate the grounds. The electricity building will have a floor space of 350,000 square feet.

THE MANHATTAN ELECTRICAL SUPPLY Co., New York, has extended its quarters all the way through the building which it occupies on Cortlandt street, so that the store now has an entrance on Dey street, and has about double the former amount of space. The company also made a large increase in its factory capacity recently, and it is confidently expected that the double enlargement will enable it to take care promptly of its rapidly increasing orders, which had hitherto been rather congested.

THE Navy Department at Washington, has had under consideration for several weeks past, the cases of two Chinamen and a Japanese, enlisting in the navy and charged with infractions of the naval regulations. It was recommended that they be tried by a naval court martial but the question was raised as to whether these aliens could properly be tried by a United States naval court. While the law officers and the Department are firmly of the opinion that the Orientals placed themselves subject to the laws of the navy when they enlisted in that branch of the Government service, they find that they can dispose of their cases in another way—by an old naval statute which provides for the discharge of persons undesirable for retention in the naval service. The discharge of the Orientals under this statute will not admit of their re-enlistment in the service, and the action of the Department is intended to discourage the enlistment of foreigners in the United States Navy.

THE ability of the American engineer to design steel structures of great strength and pleasing architectural effect, is shown in the eight half-tones on the handsome souvenir mailing card issued by the Joseph Dixon Crucible Co., of Jersey City, N. J. The card is a piece of artistic advertising on the part of the company, and will prove of decided interest to constructing engineers and architects, to whom it will be sent on request. Dixon's Silica-Graphite paint, which protects these structures from corrosion, has been very extensively used in the south, west and sea-coast sections of the United States, also in Mexico, Australia, China, Japan, West Indies and Philippine Islands, and has proven its protective and wearing qualities in all climates.

THE largest order for pipe covering ever placed, has been secured by the H. W. Johns-Manville Co., from the Pacific Coast Oil Co., (which is practically the Standard Oil Co.) who will lay about 280 miles of eight-inch pipe, from Bakersfield to Point Richmond, on San Francisco Bay, to convey their oil to the coast. As the grade is very slight, pumping stations are necessary along the line. On account of the heavy nature of the oil it must be heated to a certain temperature before it can be pumped and to maintain this temperature of the oil in the pipes between the pumping stations, a non-conducting covering is necessary, and the H. W. Johns-Manville Co. are to supply the 280 miles of covering for this purpose, which, when ready for shipment to California, will fill 200 cars. The immense facilities of the H. W. Johns-Manville Co., at both their New York and Milwaukee factories, make it possible for them to successfully handle an order of this magnitude, and a number of miles of the covering were in transit to Bakersfield, within a few days after the order was received.



ADMIRAL MELVILLE NOT AN EXTRA NUMBER.

On the 12th day of March Rear Admiral Melville submitted to the Bureau of Navigation a claim that he is entitled to be regarded as an additional number in the list of captains and asked for an official decision on this claim which is based upon the provisions of Section 1 of the Act of September 30, 1890, authorizing the President to advance Chief Engineer Melville one grade in recognition of meritorious services in connection with the wreck of the Arctic exploring steamer Jeannette, and also upon the following provision appearing in Section 2 of the same Act: "That the said Melville shall hereafter continue to be next junior to the junior chief engineer having the relative rank of commander at the passage of this Act; and whatever grade he may hereafter occupy shall be increased by one number, but the total number of chief engineers shall not be increased." Captain Lemly, J. A. General of the Navy, to whom Admiral Melville's claim was submitted, holds that it is not good in law. The case presented is practically the same as that of Colonel Robert W. Huntington, U. S. Marine Corps, who, on August 10, 1898, had been advanced and promoted from the grade of lieutenant-colonel to the grade of colonel, and became thereby an additional number under the provisions of Sections 1605 and 1606 of the Revised Statutes. The Department held that he ceased to be an extra number in the grade of colonel upon the passage of the personnel Act, saying:

"Subsequently, by the passage of the personnel Act, the number of officers in the grade of colonel was increased from two to five. Colonel Huntington's case being thus provided for, and all questions with respect thereto were presumably considered by Congress when the number of colonels was thus increased."

Captain Lemly says:

"On review of the entire case, I have reached the conclusion that in so far as the Act of September 30, 1890, operated to make the officer concerned an extra number, its provisions were repealed by, or merged in, the personnel Act, and that he is accordingly not entitled to be regarded as an extra number in the list of captains."

"If this view be accepted by the Department it does not follow that Admiral Melville's advancement in pursuance of the special Act passed by Congress on September 30, 1890, in recognition of his honorable and distinguished Arctic services should not be appropriately indicated in the Navy Register. The names of officers advanced by reason of service during the war with Spain are printed in the Register in italics, and when advanced to a higher grade the fact that they became extra numbers is indicated. The names of officers advanced for war service other than in the war with Spain are printed in italics and by note the reason of their advancement is given, and the fact that they do not become additional numbers upon promotion is indicated. It would seem entirely proper and appropriate, Rear Admiral Melville having been advanced in pursuance of the provisions of a special Act of Congress, that his name should likewise be printed in italics and the fact shown by a note that he was so advanced and does not become an additional number upon promotion."

"The fact that the Act of March 3, 1901, (31 Stats., 1107) provides that, 'all advancements made by reason of war service shall be appropriately so designated upon the official navy list' does not preclude the Department from making in its official register appropriate notes of like character in respect to other advancements."—Army and Navy Journal.

**MARINE DRAFTSMAN.**

The United States Civil Service Commission announces that on May 6, 7, 8, 1902, an examination will be held at the places mentioned in the accompanying list, for the position of marine draftsman in the Light-House Service.

The examination will consist of the subjects mentioned below, which will be weighed as follows:

Subjects.	Weights.
1. Letter-writing .....	5
2. Mathematics .....	15
3. Materials and construction .....	15
4. Calculations .....	20
5. Drafting .....	25
6. Technical education and experience.....	20
Total.....	100

Age limit, 20 years or over.

From the eligibles resulting from this examination it is expected that certification will be made to fill twelve vacancies in the position of marine draftsman in the Light-House Service, and to other similar vacancies as they may occur.

This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules.

Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners at the places mentioned in the accompanying list, for application Forms 304 and 375, which should be properly executed and filed with the Commission at Washington. The regulation requiring that applications be filed at least ten days prior to the date of examination will be waived in accepting applications for this examination.

PORT HURON MARINE ENGINEERS.

Port Huron marine engineers will fill the following positions during the coming season:

**CHIEFS.**

Ketchum—Geo. H. Bowen.  
Osceola—J. M. Oag.  
Mary McGregor—Wm. Griffith.  
Pioneer—John Cameron.  
James Watt—Arthur Armson.  
Coralia—Alex. McKenzie.  
Boscobel—Wm. Oakes.  
Geo. Hadley—John Hogan.  
Niagara—Albert Turner.  
City of Glasgow—Walter G. Thorne.  
Onoka—Thomas Morrell.  
H. E. Runnels—Thos. McLaughlin.  
Sultana—A. J. Wilson.  
Faustin—Samuel Radcliff.  
Newaygo—R. Shinsky.  
Navy yard, San Francisco—Fred Bonnah.  
Jenks Ship Building Co.—J. G. Buzzard.  
Alex. Nimick—Thos. Birch.  
Hawgood Transit Co.—R. B. Buchanan.  
Eber Ward—James H. Countryman.  
Port Huron Salt Works—Thos. Cuttle.  
Weston—Edward Cottrell.  
Ford—Robert Doonan.  
Saunders—Edward Egan.  
Gogebic—Edward Wayner.  
Islay—W. E. Hilton.  
Superior—Geo. Ingraham.  
E. F. Gould—John Kinnirie.  
Havana—C. B. Keiler.  
Rhoda Stewart—Gilbert McClelland.  
Orion—E. M. Murdock.  
Excelsior—S. G. Merrill.  
Castle—Ed. Moore.  
Penpole—E. Moore.  
Hawgood Transit Co.—J. H. Norton.  
Brazil—W. P. Pilkey.  
M. A. Hanna—John D. Riley.  
Sparta—H. W. Smith.  
Malietoa—Thos. Treleven.  
Nelson Mills—C. J. Trumbell.  
Germanic—M. Jamieson.  
Senora (new)—Thos. Welsh.  
O. O. Carpenter—J. C. Watson.  
W. H. Gratwick—E. A. Barker.  
Business—L. C. Conner.  
Oscar T. Flint—Robert Cameron.  
Case—Fred P. Fitzgerald.  
Venus—Jas. Birney.  
Clyde—E. H. Parey.  
Britannic—F. A. Cadotte.  
D. F. Rose—James A. Dillon.  
Colonial—J. G. Fowler.  
Argonaut—E. B. Kelly.  
Cleveland Power House—Harry Odette.  
Point Abino—Geo. Roberts.  
Petrel—H. Rondeau.  
Kennebec—F. T. Goodwin.  
Kanawha—Geo. A. Miller.  
Simon Langell—Geo. Cook.  
C. F. Bielma—Geo. Charleston.  
P. H. Birkhead—H. Depew.  
Tacoma—G. A. Rogers.

**ASSISTANTS.**

Ketchum—Lewis Heythaller.  
Keewanah—R. Herbert.  
Mary A. McGregor—Bert Kascadden.  
James Watt—H. Schmidt.  
W. R. Lynn—Bert Armson.  
Coralia—A. J. Carlisle.  
Geo. Hadley—Fred Warner.  
Niagara—Geo. Robin.  
Onoko—Thos. J. Coyle.  
Steinbrenner—Robert Smith.  
Newaygo—Bert Sanford.  
J. C. Ford—Lewis J. Dunn.  
Steel King (new)—Bert Gibson.  
Business—E. Gallerno.  
Lincoln—John Parron.  
Gogebic—Henry Rogers.  
Northtown—Henry Thrun.  
City of Detroit—James Cameron.  
Colby—Wm. F. Roach.  
F. & P. M. car ferry—A. Ward.  
Linden—Joseph Halymiller.  
Walter J. Scranton—A. J. Smith.  
Glasgow—J. Sax.  
Lewiston—Thos. Laberde.  
H. E. Runnels—John Johnson.  
Alex. Nimick—Gorden Potter.  
Hawgood Transit Co.—Geo. Nerreter.  
Sultana—Geo. Danger.  
Thos. Mathew—Lewis Annis.  
Brazil—Herbert Balfour.  
Langell Boys—Raymond Balfour.  
Isaac—John Parron.  
Colonial—M. Cameron.  
Clyde—Geo. Revenue.  
Falson—L. G. Rivard.  
Harvey Kendall—Fred Schenrock.

F. & P. M. No. 15—Chas. E. Sylvester.  
Kennebec—Emerson Harner.  
O. T. Flint—J. L. Bingham.  
Argonaut—Robert Elliott.  
Rhoda Emily—Fred Haas.  
C. F. Beilman—John Norton.  
P. F. Birkhead—Fred Hebbard.  
Jupiter—Wm. Butler.  
Havana—J. H. Green.  
Leland—John H. Heddele.  
Tacoma—W. Wagner.  
Senora (new)—Hayes.  
Germanic—John Gibson.  
Many of the engineers have already left Port Huron to fit out their boats.

SHIPPING AND MARINE JUDICIAL DECISIONS

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

**Concurrent Findings.**—The concurrent findings of the two lower courts, that piers, docks, and wharves erected in Lake Michigan, by a railroad company, by virtue of its riparian proprietorship do not extend into the lake beyond the point of practicable navigability will not be disturbed unless clearly in conflict with the evidence. People of the State of Illinois ex rel. Hunt vs. Illinois Central Railroad Company et al., 22 Sup. Ct. Rep. (U. S.) 300.

**Effects of Decision on Subsequent Proceedings in Lower Court.**—In determining whether piers erected in Lake Michigan by a railroad company by virtue of its riparian proprietorship extended into the lake beyond the point of practical navigability, having reference to the manner in which commerce in vessels is conducted on the lake, the circuit court to which the cause had been remanded for further investigation of the facts on which his question depends is not confined to the consideration of the size and capacity of vessels habitually employed on the lake at the commencement of the litigation or at the date of its original decree. People of the State of Illinois ex rel. Hunt vs. Illinois Central Railroad Company et al., 22 Sup. Ct. Rep. (U. S.) 300.

**Piers Erected by Riparian Proprietors—Extension Beyond Point of Practical Navigability—Question of Fact.**—Piers, docks, and wharves erected in Lake Michigan by a railroad company, by virtue of its riparian proprietorship cannot be said to extend into the lake beyond the point of practical navigability, having reference to the manner in which commerce in vessels is conducted on that lake, where such structures extend no farther into the lake than is necessary to accommodate a great number of vessels of moderate capacity, and the average depth of water at the outer line of the structures is insufficient for the accommodation of a vast amount of commerce carried on in lake vessels on the lake. People of the State of Illinois ex rel. Hunt vs. Illinois Central Railroad Company et al., 22 Sup. Ct. Rep. (U. S.) 300

**TREASURY DECISION.**

**TONNAGE TAX.**

Customs officers at one port should give due regard to payments of tonnage tax at other ports.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION, WASHINGTON, D. C., March 21, 1902.

SIR: Referring to the various applications made refund of erroneous collections of tonnage tax on vessels plying between the United States and your district, the Bureau suggests that your officers, whether at your port or at any other port in your district, be directed to advise masters of vessels of the necessity for keeping in their custody and producing to the customs officers certificates of payment of tonnage tax, as contemplated by the regulations embodied in article 179 of 1899, and Cat. No. 491.

The regulations do not authorize the giving of a separate set of serial numbers for such payments at each port. The number of the payment should be the same, whether made at your port, or at Ponce or at New York. The practice, however, in your district seems to be to give numbers to payments without regard to numbers given in the case of the same vessel during the same tonnage year at other ports. Such practice is erroneous.

Respectfully,  
E. T. CHAMBERLAIN, Commissioner.  
COLLECTOR OF CUSTOMS, San Juan, P. R.

**Admeasurements of vessels.**

Inclosed spaces on the upper deck of vessels available for stores of coal should be included in gross tonnage and not deducted.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION, WASHINGTON, D. C., March 21, 1902.

SIR:—The inquiry in your letter dated the 20th instant, whether certain space under the bridge deck of the steamship American covered by a permanent deck and inclosed by permanent sides and forward end, but having at the after end a heavy wooden bulkhead, which on every trip is in place, shutting out the weather, such space between being filled on each trip with coal for the use of the vessel, was properly included in the vessel's gross tonnage, and should not be deducted therefrom under the Bureau's letter of the 18th instant, relating to the vessel, is answered in the affirmative.

Respectfully,  
E. T. CHAMBERLAIN, Commissioner.  
COLLECTOR OF CUSTOMS, New York, N. Y.





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CLEVELAND, O., APRIL 3, 1902.

### POSSIBLE FUTURE IMPROVEMENTS IN GAS ENGINES.

Speculation on future improvements in any line of machinery are always feasible and lead at the least to profitable discussion even should the prophecies made fall considerably short of what will actually take place. While the writer believes he has good grounds for his several opinions, the future, like life itself, is uncertain, and the development may take other lines than those suggested herewith. If, however, the cause of gas engine is advanced the smallest fraction of a per cent. by the following remarks, the purpose of the article will have been fulfilled.

In the first place the range of temperature which is at present the prevailing practice with the builder of the ordinary two and four-cycle engine will bear improvement, although considerable has been done in that line within the past few years. With steam engine practice the initial pressures in vogue in gas engine compare favorably; but the fall of pressure in a gas engine commences with the beginning of the expansion stroke, and the M. E. P. obtained is practically the same as that in the average steam engine having a modern cut-off. The terminal pressure in the gas engine cycle is nearly as high as the initial pressure in many steam engines. Hence considerable energy passes away through the exhaust passages. This makes it appear that there is room for improvement at each end of the expansion stroke.

In the Diesel motor the initial pressure has been considerably increased and the terminal pressure diminished by means of the unique cylinder employed. Great things have been expected of this engine, but in spite of the encouraging reports we hear from time to time, it has not become a serious competitor among the prime movers of the world. Several gas engine manufacturers, more daring than the rest, have carried the compression in the ordinary four-cycle engine to what appears to be a practical limit, and while it has brought them in contact with difficulties hitherto not experienced, the improvement in the economy of the engines has been thoroughly demonstrated. In the Sargent engine the terminal pressure has been carried very close to that of the atmosphere with a consequent economy. The compound engine often broached, occasionally attempted and generally successful, has always seemed a comfortable way of solving this end of the problem. It may, in fact, be waiting only for the proper solution with which some plodding inventor will astonish us in due time. The use of a condenser is naturally suggested by its excellent results when used with the steam engine. Perhaps it may prove of service in connection with the high-power gas engines that are certain to be constructed in the near future.

In relation to the service that the condenser may give in connection with the gas engine it may be said that a terminal pressure very close to that of the atmosphere must first be obtained. Then, by reason of the fact that the pressure of the exhaust may be lowered by cooling and contracting the hot gases and also by condensing the

water vapor that is generated, it is probable that the terminal pressure may be reduced considerably below that of the atmosphere, although the terminal pressure of the condensing steam engine cannot be expected. This is due to the pressure of considerable quantities of nitrogen and carbon dioxide which will remain in a gaseous state when cooled by this process.

To the compression of the charge in the Beau de Rochas cycle there is a practical limit that is determined by the igniting temperature of the fuel employed. In the Diesel cycle this trouble is avoided by withholding the fuel until after the compression is completed. During the compression of the charge its temperature is raised both by the increase of pressure and the transmission of heat from the engine itself, and also by heat derived from the products of combustion remaining from a previous explosion. Of course, it is usually considered as being conducive to the economy of a gas engine to prevent as much as possible of the heat generated from escaping through the walls of the cylinder, and a cold cylinder wall is not usually an aid to the economy of the engine. It is probable, however, that by keeping the cylinder walls comparatively cool and driving out all the products of combustion before taking in a fresh charge that the practical limit of compression could be raised and probably to the advancement of the economy of the engine in spite of the heat that would escape through the walls of the cylinder.

It is a fact that compression cannot be carried as far with a gasoline engine as with one using a gaseous fuel, and this is in a measure due to the practice of heating the air before it enters the cylinder in order to assist in the vaporization of the fuel. It is generally admitted to be a fact that the cooler the charge can be kept until it enters the cylinder, the better will be the performance of the engine, in so far as economy is concerned. For this reason many manufacturers object to preheating the air. Preheating the air not only increases the liability to premature explosions, but it also expands the charge so that the amount which may be drawn into the cylinder is reduced. For this reason many gas engine builders insist upon keeping the inlet passage cool and water-jacket the inlet-valve casing.

The above remarks would suggest the adoption of methods of vaporizing the petroleum products with as little preheating as possible. This idea is already carried out in existing engines and its possible extension will be of assistance to gas engine.

Methods of scavenging without the use of complicated mechanism will also aid in the advancement of economy. Scavenging by the use of a considerable quantity of cool air would be of assistance in keeping the interior of the engine cool.

Improvements in the ignition devices employed are also in order and very few are the electric igniters that will not miss fire occasionally. It has been pointedly remarked that a large majority of the troubles with gas engines are due to poor electrical engineering. Methods of wiring and mechanisms that would not be countenanced by an electrician or electrical engineer of any experience are daily to be seen installed on gas engines. Switches and terminals that would not be employed except on electrical toys are often run across in gas engine electrical devices. At least one gas engine manufacturer who makes a specialty of a certain form of electric ignition device has defied competition in this particular line because no other manufacturer has been able to imitate him successfully. Yet the writer knows from personal observation that the system referred to has proven remarkably successful whenever turned out by the factory's electrician.

Users of the jump spark system have troubles by the score and the greater number of these troubles are due to insulation. Yet the jump spark system has been used for years in connection with gas lighting for public buildings; and the circuit problems involved are much the same as those in the gas engine outside of the igniter plug itself. Here is where one may find so many differences of opinion regarding suitable insulation. One manufacturer will use mica, and another condemn it. Another employs porcelain, while another will have nothing to do with it. Still other insulators are being tried, and each has its advocates and its enemies. The trouble is not far to seek. Each insulator behaves differently and has advantages not possessed by the other. For this reason they each require different treatment and intelligent selection. Again the use of the jump spark for multiple cylinder engines is usually carried out by the employment of a separate coil for each cylinder. Commutating the high tension current usually gets the engine runner into trouble, and yet it would seem that this is a phase of the problem that is capable of intelligent solution. Then there is a marvelous difference of opinion in regard to the use of a coil with a magnetic vibrator. If you are a mechanic in the proper sense of the term, a glance at the vibrators that are installed upon many of the coils would show the reason for the aversion to them. Here again comes in the toy feature of the electrical appliances offered for use with gas engines. Is it not better to pay a higher price for a good coil than to buy an inferior coil simply because it is cheap? The ratio of this difference in price to that of the engine itself is very small indeed, although the highest priced coil the writer knows of costs \$26 and the lowest priced \$6. There is an opportunity for improvements in both coil and plugs, even though there are excellent ones on the market at present.

The electric battery is another auxiliary that is susceptible of improvement. If light, its life is short; if its life is long, it is heavy. While there is an expensive cell that appears to embody long life with light weight, those in average use are far from ideal in this respect.

The whole subject of electrical ignition seems hardly to have received the attention it deserves. The time of contact in variable speed engines is the same at all speeds. Current is wasted through faulty methods both of wiring and insulation. The battery is called upon for a wasteful output of current which lowers its efficiency and useful life and the resistance of the exterior circuit is seldom adapted to that of the battery.

That other source of current, the dynamo, is also a neglected feature. Many of these instruments are foisted upon the gas engine builder and used by parties who know little more than the first principles of electricity, and the ignorance of the gas engine builder himself permits him to be deceived by appearances and prices. Toys again, brush holders and windings that would bring blushes to the cheek of any dynamo maker of standing, if they were to be found on his premises. Even the experienced dynamo builder, ignorant of the requirements of gas engine service, will occasionally risk his reputation by marketing a machine totally unfit for the purpose. The current furnished will ignite the charge very nicely, but the electrodes will gradually disappear. Yet a nicely balanced dynamo will furnish current for an igniter for months with scarcely a perceptible corrosion and without the use of other than steel terminals.

In spite of the admitted success of the steam turbine, very few inventors have turned their attention to turbines driven by the direct combustion of gaseous fuel. Possibly not over twenty patents altogether have been taken out in this line, and yet it would seem that the future for such a machine is full of promise. The true rotary engine would probably be as barren of results in gas engine as it has been in steam engine. Again, there are possibilities perhaps in a well-balanced gas engine and gas producer plant in which the heat now wasted through the water-jacket and the exhaust could be turned into useful channels. Perhaps a gas producer will be developed that may be used on shipboard instead of the boiler and the vessel driven by means of producer-gas engines with the same certainty that are now driven by steam engines. Attention will then necessarily turn to the securing of more power per revolution and per unit weight of engine than is the case at present. Of course, the liquid fuel engine does away with the gas producer for this purpose, but liquid fuel is not obtainable in every port. One great advantage could be obtained by the use of a producer capable of employing a wide variety of fuels and present developments in this line appear to promise just such a device.

It will be the introduction of gas engines in units aggregating horsepowers in four figures that will call for minor improvements now not considered advisable in the smaller engines in general use to-day. Then an increase in efficiency of even 1 per cent. will receive serious consideration, where in a small engine it would not be worth while. It is probable that, without complicating its mechanism unduly, an engine may be developed in which the piston will receive alternate impulses on both sides, and possibly even every stroke, thereby getting four times the work out of a cylinder and engine of a given size and speed as is at present commonly obtainable. When this day shall have arrived, the steam engineer will have to look to his laurels that he has so worthily won and so gracefully worn for the last one hundred and twenty years; for in the double-acting, high speed expansion gas engine, he will find an active competitor, both on land and at sea.—The Gas Engine.

### AN EARLY OPENING ON THE ST. LAWRENCE.

This season is certainly an unsurpassed one as regards an early opening of navigation. For the first time in the history of the Marine Department at Quebec, the lights, stationed at different points along the lower St. Lawrence, will be set in operation on the 14th of April. Following this will be the placing in position of the various buoys. Mr. J. U. Gregory, the agent for the Department of the Marine and Fisheries, noticing that the lower St. Lawrence was ready to receive the prospective shipping business of the season, is anxious to encourage it in every possible way, and for this reason has taken the earliest opportunity of making the St. Lawrence safe for navigation.

### WALKING A HUNDRED MILES ON THE WATER.

Capt. Grossman has walked down the Danube from Linz to Vienna, a distance of 100 miles, on his newly invented water walking shoes, towing his wife in a boat, it taking him 21 days to make the trip. The long time spent on the journey is explained by the fact that Capt. Grossman stopped at several places to give exhibitions of his shoes. These are five yards long.

The trip was made without mishap, notwithstanding there was an unusually strong current and much floating ice in the river. In addition, there were a number of storms which made the traveling perilous.



## METRIC SYSTEM RECOMMENDED.

The Franklin Institute, of Philadelphia, Pa., recently appointed a special committee to consider the advisability and feasibility of the adoption of the metric system throughout the United States. This committee recommended that the system be adopted.

The principal argument in favor of such action is that every civilized country in the world except this one and Great Britain uses the metric system; consequently, its adoption by this country would greatly facilitate international commerce and extend the international character of scientific terminology. The chief argument against the metric system is that the natural mental process in making computations is to divide everything by two—a unit being divided into halves, quarters, eighths, sixteenths, etc.—and that the metric system is not based on this natural human propensity, being a decimal system. This argument is a very academic one, notwithstanding its supremely practical basis. Our monetary system is decimal, but no difficulty has been found in dividing the fundamental unit (the dollar) into halves and quarters. Moreover, it is indisputably true that a reasonable experience with any system of measures will render the use of the system automatic and fluent. It is natural for human beings to convey food to the mouth by means of the fingers—watch any three-year-old eat unrestrained—but it does not require an enormous amount of education to counteract that tendency.

Even if the natural tendency to bisect quantities be considered as an important factor, it would justify only a part of our present units of weights and measures, notably the inch, pound and bushel. To be consistent in this view, the yard should contain either two or four feet, and the foot should contain eight, sixteen or thirty-two inches. Similarly, the mile should be divided into 2,048, 4,096, 8,192 or some other number of feet that would make the foot or the yard the result of successive halvings, and there should be 32 gallons in a barrel. The fact that although these very mixed standards are not consistent with the bisecting theory, they have been used for years without much difficulty, is ample confutation of the claims made for the "natural tendency." In order to conform to this tendency, most of the present system of weights and measures would have to be revised, causing the same confusion and detriment to manufacturers that would be entailed by changing to the metric system. And after it was all over we should still labor under the disadvantage—as we do now—of having a system that would not be smoothly interoperative with any foreign system, and one that would hamper export relations, just as the present system does, by reason of the refusal of foreigners to learn it and the consequent necessity for conversion into their system.

Next in importance after the international feature of the metric system comes the ease of computation. It is obviously much easier to convert centimeters into meters than it is to convert inches into feet or yards; in the first case one merely points off two places of decimals, while in the other division by 12 is necessary, of course. But the chief facility comes in the transition from one set of measures to another. Thus, a cubic centimeter of water weight just one gram at maximum density; a liter is a cubic decimeter, and so on. And the bisecting practice can be, and is, applied within reason to the metric system; it is quite common to speak of a demi-kilogram, which is very nearly equal to our pound.

A sudden change to the metric system would undeniably be tremendously expensive and troublesome at the outset to American manufacturers, and this would seem to be by far the greatest drawback to its adoption. It is claimed by advocates of the change that it could be effected so gradually that no serviceable machinery and tools would need to be sacrificed, and whatever expense there might be would be distributed over a period of such length as to make it practically unfelt. At best, however, the inconvenience would be enormous; but the benefit to international commerce and engineering would appear to be incalculable.—American Electrician.

## THE ILLINOIS TO REPRESENT US.

The Illinois alone will be present at the coronation of King Edward VII. to represent the American navy. This is the result of a notice sent by Great Britain to the State Department that each power would be allowed only one ship. No reason was assigned, but it is supposed that the cost of entertaining a large number of naval vessels of all nations was feared to be too great for the British purse.

Accordingly the Illinois will sail from Hampton Roads some time next month for England as the flagship of Admiral Crowninshield, assigned to command the European station. Naturally there is great disappointment among the officers of the navy who had anticipated participation in many social doings and who had prepared accordingly. The fleet was to have consisted of the Illinois, Cincinnati, San Francisco, Chicago, Atlanta, and Nashville. The request for limitation of representation was conveyed in a formal invitation received by the State Department and by it turned over to the Navy Department.

THE STIRLING CO., Manufacturers of the Niclausse Water Tube Boiler, made a shipment of boilers last week to Porto Rico from its Barberton, O., plant. It required 41 cars to make the shipment.

## MONTHLY SHIPBUILDING RETURNS.

TREASURY DEPARTMENT, OFFICE OF THE COMMISSIONER OF NAVIGATION, March 31, 1902.

The Bureau of Navigation reports 112 vessels of 59,592 gross tons were built in the United States and officially numbered during the month of March, 1902, as follows:

	WOOD.				STEEL.				TOTAL.	
	SAIL.		STEAM.		SAIL.		STEAM.			
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf.....	54	3 919	21	1,133	I	228	10	20,476	86	25 756
Pacific .....	2	1,183	3	134	.....	.....	.....	.....	5	1,317
Hawaii .....			1	13	.....	.....			1	13
Great Lakes.....			2	47	.....		9	32 060	11	32,107
Western Rivers .....			9	399	.....				9	399
Total.....	56	5,102	36	1,726	I	228	19	52 536	112	59,592

The largest steel steam vessels included in these figures are:

NAME.	GROSS TONS.	WHERE BUILT.	OWNER.
Korea.....	11,276	Newport News, Va.	Pacific Mail S. S. Co.
William H. Gratwick.....	4,776	Cleveland, Ohio.	American Ship Bld'g. Co.
Nevadan.....	4,408	Camden, N. J.	American and Hawaiian S. S. Co.
F. M. Osborne.....	4,309	Lorain, Ohio.	American Ship Bld'g. Co.
Frank W. Hart.....	4,307	" "	" "
C. W. Watson.....	4,306	" "	" "
E. N. Saunders.....	4,305	" "	" "
G. J. Grammer.....	3,914	West Superior, Wis.	Superior Ship Bld'g. Co.
Sultana.....	3,914	" "	" "

The foregoing figures do not include craft without motive power of their own. From other sources than construction one vessel, the Vineta, of 668 gross tons, of foreign wreck, was added to the merchant fleet.

## QUARTERLY SHIPBUILDING RETURNS.

The Bureau of Navigation reports 232 sail and steam vessels of 90,995 gross tons built in the United States and officially numbered during the quarter ended March 31, 1902, as follows:

	WOOD.				STEEL.				TOTAL.	
	SAIL.		STEAM		SAIL.		STEAM.			
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf.....	109	11,726	49	2,654	3	5,260	17	27,913	178	47,553
Pacific.....	12	6,824	12	1,707	.....	.....	1	2,036	25	10,567
Hawaii.....	.....	.....	1	13	.....	.....	.....	.....	1	13
Great Lakes.....	1	12	3	77	.....	.....	9	37,060	13	32,149
Western Rivers.....	.....	.....	14	571	.....	.....	1	142	15	713
Total.....	122	18,562	79	5,022	3	5,260	28	62,151	232	90,995

During the corresponding quarter ended March 31, 1901, 185 sail and steam vessels of 67,744 gross tons were built in the United States and officially numbered, as follows:

	WOOD.				STEEL.				TOTAL.	
	SAIL.		STEAM.		SAIL.		STEAM.			
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf.....	81	14,578	37	1,714	1	1,120	6	3,568	125	20,980
Porto Rico.....										
Pacific.....	9	4,317	17	1,672			1	4,153	27	10,142
Great Lakes.....			6	1,969	2	3,888	9	29,404	17	35,261
Western Rivers.....	5	132	11	1,229					16	1,361
Total.....	95	19,027	71	6,584	3	5,008	16	37,125	185	67,744

## NINE MONTHS SHIPBUILDING RETURNS.

The Bureau of Navigation reports 949 sail and steam vessels of 245,068 gross tons built in the United States and officially numbered during the nine months quarter ended March 31, 1902, as follows:

	WOOD.				STEEL.				TOTAL.	
	SAIL.		STEAM.		SAIL.		STEAM.			
	No	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No	Gross
Atlantic and Gulf.....	453	51,449	183	12,858	5	8,869	39	58,724	680	131,900
Porto Rico.....	2	34							2	34
Pacific.....	37	21,254	44	5,488			1	2,036	82	28,778
Hawaii.....			1	13					1	13
Great Lakes.....	6	161	45	2,033			25	75,810	76	78,004
Western Rivers.....	6	114	99	6,040			3	185	108	6,339
Total.....	504	73,012	372	26,410	5	8,869	68	136,755	949	245,068

During the corresponding nine months ended March 31, 1901, 753 sail and steam vessels of 246,973 gross tons were built in the United States and officially numbered, as follows:

	WOOD.				STEEL.				TOTAL.	
	SAIL.		STEAM.		SAIL.		STEAM.			
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic and Gulf.....	328	58,754	123	7,566	7	10,012	26	47,747	484	124,079
Porto Rico.....										
Pacific.....	35	18,296	44	7,196			4	6,030	83	31,522
Great Lakes.....	5	108	30	2 551	3	6,678	25	74 030	63	83,367
Western Rivers.....	46	847	76	6,596			1	562	123	8,005
Total.....	414	78,005	273	23,909	10	16,690	56	128,369	753	246,973





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### THE INFLUENCE OF SMALL LAKES ON LOCAL CLIMATE.

In a letter to the Chief of Bureau of the Weather Service, the following questions have been asked:

1. Do the lakes in central and western New York have an appreciable influence on the amount of rain, snow, fog, or dew, and is this region consequently favored with a greater certainty of crops than neighboring localities?

2. Is the climate in their neighborhood modified in any particular so as to make it more desirable?

The following extracts are made from the Chief's reply: There are a number of ways in which lakes affect the climate of their immediate neighborhood:

1. The reflection of the sun's light and heat from the surface of the water has a decided influence in warming the soil on the east, west, and north sides of the lake. If the banks are steep and high this influence is felt to a corresponding elevation above the water, but if they are very low it is inappreciable.

2. Evaporation from the lake surface throws more water into the air than evaporation from the ordinary fields or forests. There is, therefore, an increased tendency to the formation of fogs during the late night hours and calm weather, and a corresponding protection from frosts, up to the limit of the fog.

3. When the wind blows, the vapor being carried to the leeward side increases the chance of forming fog, cloud, and rain to a distance from the lake, depending upon the strength of the wind and the size of the lake. As the surface of the lake is cooler than the surface of the land in the summer time, and in the middle of the day, the wind also tends to diminish the range of temperature on the leeward side of the lake.

The actual numerical amount of these lake influences must diminish with the size of the lake. Thus, on the east shore of Lake Michigan there is a region 5 miles broad, and at the southeast a region 10 miles broad, greatly protected by warmth, fog, and cloud when cold west or northwest winds are blowing. Without having any special local observations to guide our estimates we dare only suggest that the small lakes in central New York probably affect local climates very much as Lake Michigan does, but only to an extent proportional to their areas. That is to say, Lake Cayuga, for instance, having an area of 25 square miles, would have an influence of about one one-thousandth part of that of Lake Michigan, with its area of 25,000 square miles. Although local observers might be well persuaded that an occasional cloud or rain, or fog is due to the presence of the lake, yet on the average of many years the influence of the lake would be inappreciable, at least so far as items 2 and 3 are concerned.

With regard to the first item, namely, the reflection of heat from the surface of the small lakes we think that should be appreciable.

In so far as the small lakes occupy depressions into which the cold air may drain in still, clear nights, they do by that process oppose the formation of frost over the neighboring watershed, but this is an influence independent of the lake water, and depending only on the contour of the depression.

A comparatively thick network of observers with thermometers and rain gauges would be necessary to convert these general expressions into figures.

### A SAIL IN A GLASS BOAT.

A hotel keeper at Nassau has elaborated the idea of the marine telescope in striking fashion. Most people who have been in the tropics are familiar with the "marine telescope," a long wooden box with a pane of glass at one end, which, being thrust into the water at one side of the boat, enables one to get a fairly satisfactory view of the animal and vegetable life or near the bottom—when the bottom is not too far from the surface. What the ingenious hotel keeper proposes is to make a big boat which shall itself be a marine telescope, and so provide his

patrons with an opportunity to watch the sea gardens of the Bahamas much more conveniently than they could with the glazed tube. The boat, which is now building at Palm Beach, Fla., is to be 48 feet long, and 28 feet wide, its bottom is to be made of plate glass, clear and thick. Thus will the opacity of the surface ripples be avoided, while deeper immersion, increased steadiness and wider field of view are expected to give the passengers such a spectacle of sub-marine wonders as they never secured by the simpler arrangement.

### A PROTEST AGAINST THE METRIC SYSTEM.

The executive committee of the American Society of Mechanical Engineers has issued, in the form of a circular letter to all members, the report of its committee on the metric system. The report is signed by Messrs. Coleman Sellers, Coleman Sellers, Jr., George M. Bond, J. E. Sweet, and Charles T. Porter, and is strongly against the compulsory adoption of the metric system in this country. Members are earnestly urged to address their respective representatives in Congress and to protest against the pending legislation in that direction. It is pointed out that the metric or French system is now legal, and its use is optional, while, if the bill now before the House is passed it will be illegal to use in the United States pounds and tons, yards feet and inches, and gallons, as measures.

### TO PATROL BERING SEA.

Every effort is being made by the Navy Department to have the entire revenue patrol fleet in readiness to enter Bering Sea and resume the duties of patrolling that district at an earlier date than usual. An influx of miners to Nome and other mining camps of Alaska is expected this season which will render the presence of the cutters imperative as the only representation of Federal authority.

### PASSENGER TRAFFIC.

The Central Passenger Association at a recent meeting passed the following resolution:

"Resolved, That the members of this association limit interchange arrangements, ticket and rate representation to the lake lines who may file with the commissioner their assent to entirely discontinue payment of ticket commissions, and that fares shall not be quoted in tourist publications via lake lines declining to cease such allowances."

In connection with the above the following resolution was offered for considering at the next meeting of the association:

"Resolved, That, in event the steamboat lines on Lake Erie agree to discontinue the payment of ticket commissions to ticket agents, all one-way or round trip tickets issued on the basis of established rail fares may be optional for passage either all rail or water between Detroit and Buffalo, or between Detroit, Toledo, Cleveland, and Buffalo, and that the low rates locally between Detroit and Buffalo via the Detroit and Buffalo Steamboat Co., shall not be used for basing purposes.

"Resolved further, That the lake lines may honor such tickets when tendered with contracts attached without requiring them to be exchanged at ticket office."

The purport of this action of the Central Passenger Association in regard to the lake lines seems to be that unless they accede to the demands of the rail lines they will be refused ticket representation or interline arrangements.

The two big lines out of Detroit have been the bone of contention ever since the ticket commission proposition came up for adjustment. A. A. Schantz, it is claimed speaking for the D. C. line, agreed with other lake line representatives to continue the payment of commissions, saying that the season of lake lines was short, and that some inducement must be held out in order to secure the business. For the new D. B. line he did not vote, but later in a communication to the association said that he would not pay commissions on the new route.

### DISCHARGING FACILITIES.

The detention at the docks during the past season of navigation, when the output of ore from the Lake Superior region exceeded 20,000,000 tons, has hastened the plans of dock managers, who have been watching for two years past, the experimental unloading machines of the Webster, Camp & Lane Co., of Akron (Hulett type), on the Conneaut docks, and the machines of Hoover & Mason at South Chicago, and it is announced that a large plant of the Hoover & Mason kind, now being erected by interests controlling the Angeline and Mahoning, and Chenango docks at Ashtabula, is to be in readiness for the coming season; that the large new docks to be erected at Ashtabula by Pickands, Mather & Co., are to be equipped with similar machines, and that they will be tried also on the Nypano docks, Cleveland; that M. A. Hanna & Co., on the Pennsylvania side of Ashtabula harbor, are to operate during the coming season on one of their docks grab buckets of Hulett type, and that they are to experiment with one machine of the kind that is entirely automatic, with a view to extensive adoption of it; also that the docks at the new works of the Lackawanna Iron and Steel Co., Buffalo, will be equipped with the latest type of Webster, Camp & Lane machines.

This new machinery will require so much time in development that little can be expected in the way of improved Lake Erie dock equipment for the present season, but this branch of the ore industry is hoping for considerable relief from improved railway facilities.

At Conneaut, for instance, no dock changes are being made, but officials of the Steel Corporation confidently expect that their railway to Pittsburg will be so improved in sidings, etc., and the number of cars and locomotives so increased that they will handle close to 4,000,000 tons of ore at Conneaut this year, as against about 3,200,000 tons in 1901. The Webster, Camp & Lane type of automatic unloader originally tried at Lorain, and the Hoover & Mason machine first installed at South Chicago are, of course, being very much improved in the plants that are to be erected at the places referred to. These machines are the basis upon which the general change is being planned.

### INTERNATIONAL MOTOR-BOAT EXHIBITION.

On the 1st of June next there will be opened at Wannsee, a pleasant watering place station on the Havel, a few miles west of Berlin, an international exhibition of motor boats and all that pertains to their construction, use, and maintenance, writes Consul General Frank H. Mason, from Berlin. The enterprise is projected under the auspices of the Middle European Motor-Carriage Association. The exposition will have the powerful support of the emperor of Germany whose technical knowledge and enthusiastic interest in all that relates to boat construction and navigation are well known.

The plan of the exposition contemplates a practical competitive international display, which is intended to bring together in friendly competition the best that has been achieved in all countries in respect to the construction, care and use of boats, launches, yachts, and other craft of moderate tonnage and propelled by gas, gasoline, electrical or steam motors. Every facility will be given for entering and withdrawing, duty free, articles for exhibition which remain unsold at the close of the display. The winners in the proposed contests in speed, endurance, and economy will be placed in a position of great advantage for the trade of Europe and the colonies in tropical latitudes where motor boats have proven so practicable and useful.

In order that the dimensions of the buildings, tents, and pavilions may be adapted to the space requirements of exhibitors, it is desirable that all who wish to avail themselves of the opportunities offered by this exposition shall announce their intentions and make requisition or space at the earliest practical date. Correspondence should be addressed to Oskar Counstrom, general secretary, No. 1, Universitat strasse, Berlin.



### ARMOR PLATE FOR THE RUSSIAN GOVERNMENT.

The construction of the battleship Retvizan and the cruiser Variag for the Russian government by the American shipbuilding yard, the armor for which ships was made by the Bethlehem Steel Co., has led to the placing of other Russian orders for plate in this country. A striking evidence of this was seen last week in a train of eighteen cars which left Homestead on express orders for New York, carrying thirty-six plates for the first class battleships Borodino and Ariel, which are now building at the Imperial yards at St. Petersburg. The consignment represented six months' work at the armor plate department at Homestead. In view of the fact that the armor plate required for the new warships for the United States navy is more than sufficient to keep the Bethlehem Steel Works and the Carnegie works continuously occupied, it is evident that there is a call for other armor plate factories in addition to the above named, says the Scientific American. We understand from the last report of the Naval Bureau that a third firm will shortly be in a position to turn out Krupp armor; but if we are to furnish the armor for our own navy and also supply foreign governments on the scale of this recent shipment, it is evident that there will soon be a demand for a fourth armor plate making establishment. The industry is an extremely profitable one, even at the reduced price at which plate is now being furnished. Indeed, we do not know of any industrial enterprise in which capital could be invested on a large scale with a surer certainty of profitable returns. There is not the slightest indication of any slowing up in the rate of growth of the navies of the world, our own included; and if the United States navy is to increase in adequate proportion to the extension of our foreign trade (as it certainly should do), the demands of our navy alone will before long require double the amount of armor plate that is now being furnished annually by existing works.

### LOCATED THE DEAN RICHMOND.

Fred Dorler, of Dunkirk, N. Y., believes that he has located the wreck of the steamer Dean Richmond, which foundered between Erie and Dunkirk, October 14, 1893. The point where the boat went down has always been supposed to be northwest of Van Buren, and careful search has been made for the hull at different times.

Two sons of Mr. Earnest, of Toledo, were among the portion of the crew supposed to be with the hull at the bottom of the lake, and much sympathy was felt in Dunkirk for his grief, when after the shore had been thoroughly searched and watched until it seemed certain that no more bodies would be likely to drift ashore, he exclaimed with sobs:

"Must I go home without my boys?"

Mr. Earnest from that time has kept money in bank ready to be drawn to defray expenses of taking care of the remains of his two sons if at any time the vessel should be located and his boys' bodies found.

Not one of the crew survived to tell the story of the disaster and a large reward was offered for the recovery of the bodies supposed to be still in the wreck.

Mr. Dorler claims that he knows the exact location of the sunken vessel and is only waiting till the ice is gone to make a thorough investigation of the wreckage that he discovered late last fall, two miles west by northwest off Point Gratiot.

Mr. Dorler saw from a distance what appeared to be a pole sticking out of the water. Going close to it, he found it to be the mast of a vessel. The water was clear and he could see the hull of a large boat, stationary on the bottom of the lake.

He then stripped off his clothing and plunged into the water. He was not able to descend very far, but from what he saw he was convinced that he had found the Dean Richmond. He claims to have seen the skeleton of a man entangled in the wreckage.

He attached a buoy to a spar of the vessel and intended to secure assistance and make thorough examination of his find, but winter set in soon after and ice was in the way before he was able to make the investigation. He has waited for the clearing away of the ice in the spring.

### SKILLED FIREMEN.

The importance of having skilled firemen for both stationary and marine work is becoming more and more pronounced. Not very many years ago the firemen was looked upon as a little better than a common laborer, it being considered that his duties consisted of being able to throw coal into the furnace; the more he could throw the nearer he came to being regarded as a good man, not afraid of hard work. Modern high pressure installations have done much toward bringing out the real qualities a fireman should possess.

On these plants the skill of the fireman comes into play. Regardless of the quality of coal, in many cases indifferent, he is expected to keep the pressure up to a specified point. To do this requires considerable knowledge of the heating value of the various kinds of coal, as well as the peculiarities of the plant he is working on, in reference to the demand for steam. Aside from his skill in economical steam making, he must possess a robust physique in order to stand the strain of handling many tons of coal a day, in places that are a veritable inferno.

One of the questions that has vexed the officials of the United States Navy, has been the lack of an efficient force in the boiler rooms of the high powered cruisers and battleships. Many schemes were proposed and some of them tried, but to no avail. As a last resort a cruiser has been placed in commission for the specific purpose of training firemen. This is a decided recognition as to the value of a fireman, and it is to be hoped that this example will be followed in other quarters.—The Engineer's List.

### HIGH SEA SPEED AND ITS COST.

In the course of an interesting article dealing with the question of cost, horse power, and speed of an Atlantic liner, Engineering refers to the recent announcement that the Cunard Co. are building a new steamer of great speed. The company's steamers, Campania and Lucania, of 12,500 tons register, continues our contemporary, maintain 22 knots on the Atlantic, with the engines developing 28,000 indicated horse power. To increase this speed to 23 knots will necessitate not only a larger and costlier ship, but an addition of 8,000 horse power to the machinery; while to get 24 knots it is computed that the power will have to be 48,000 indicated horse power. Thus an addition to speed of two nautical miles per hour adds to the fuel consumption 290 tons of coal per day, assuming a very high efficiency to be got from the machinery, bringing the total per day to 750 tons, or 1.3 ton per mile steamed. An 18 knot boat, on the other hand, would consume considerably less than half this total amount of coal, and her expenses for oil and other stores, and for wages in the engineering department, would be correspondingly lessened. Moreover, the 18 knot boat may profitably carry a large quantity of cargo, and her machinery will require but one half the space and weight of that of the 24 knot liner. It does not pay to take cargo at a high speed. Against this, however, there must be placed the higher rates which may be charged for passengers. The minimum first class rate on the fast German ship is about \$100; in 22 and 21 knot ships it is \$60; while there is, again, a great difference in the maximum, many \$1,000 fares being taken, and others range up to \$2,000. A large percentage of American tourists insist on traveling in the fast ships, and the German lines are satisfied that the high speed liner pays. They add to the resources of a nation in war times, and for this reason larger admiralty subvention rates are justifiable. National prestige and the company enterprise which they indicate are also worthy of some consideration.

### MARINE PATENTS.

695,917.—Boat. Ambiehl Dominick and Louis Krebs, New York, N. Y.

695,994.—Windlass and capstan and means for driving same, Jacob R. Andrews, Bath, Me., assignor to Hyde Windlass Co., same place.

696,098.—Automatically propelled multiple hull vessel. James Graham, New York, N. Y.

696,103.—Ship. John K. Leedy, Roanoke, Va.

### EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the Eastern freight market as follows:

The few fixtures reported for full cargoes of grain show an improvement in this special branch of chartering, and whilst the enquiries for further tonnage are more prevalent than has been the case for some months past, the price of cereals has not yet declined sufficiently to enable any volume of business to be transacted. At the same time we are in hopes that more activity will shortly be shown. In other directions there is little of interest to advise. Timber charterers from the Gulf are making very few commitments, having supplied themselves pretty liberally with tonnage up to the present time. The improved enquiry for grain tonnage has had the effect of stiffening the rates on cereals from the Gulf ports, which has enabled charterers to do some little business, though the rates paid for steamers do not show any marked improvement. There is some little enquiry for coal tonnage from this coast to Mediterranean ports, but owners' ideas are a little above what shippers are prepared to pay, and chartering in this line is, therefore restricted.

The market for sail tonnage in general shows little animation, and although few vessels are offering, either spot or prospective, the situation remains unchanged.

There is about 40,000,000 feet of lumber on the Ashland docks, from which vessel shipments will be commenced as soon as navigation opens. Lumber owners are anxious to get their lumber out as early as possible in the spring, to avoid paying taxes on it. The local assessor makes his start in May, and from present indications most of the lumber stock will be out of the state before the assessor reaches the docks. There are no fears of labor troubles in this region on account of any differences between vessel owners and the longshoremen. The rate of fifty cents per hour which prevailed last year is satisfactory to the longshoremen, and vesselmen are showing no disposition to cut it. What is done in regard to wages will be accepted throughout this region by both sides for the season.

The Sundry Civil Appropriation Bill reported to the House the latter part of last week contains the following items: For completing the light and fog signal station on St. Martin Island, St. Martin passage, entrance to Green Bay, Lake Michigan, \$10,000; for completing a steam tender for buoy supply and inspection of the Ninth light-house district, \$30,000; limit of cost, \$115,000; for completing new steam tender for construction and repair service in Ninth district, \$65,000; for completing a light and fog signal station to mark the outer end of main channel entrance to Toledo harbor, \$10,000; limit of cost, \$100,000; for completing improvement of water communication across Keweenaw Point, \$10,000; for completing improvements of Detroit river, \$136,500; limit of cost, \$561,500; for completing improvements in Hay Lake channel, St. Mary's river, \$144,115; limit of cost, \$394,115; continuing improvements Toledo harbor, \$223,000.



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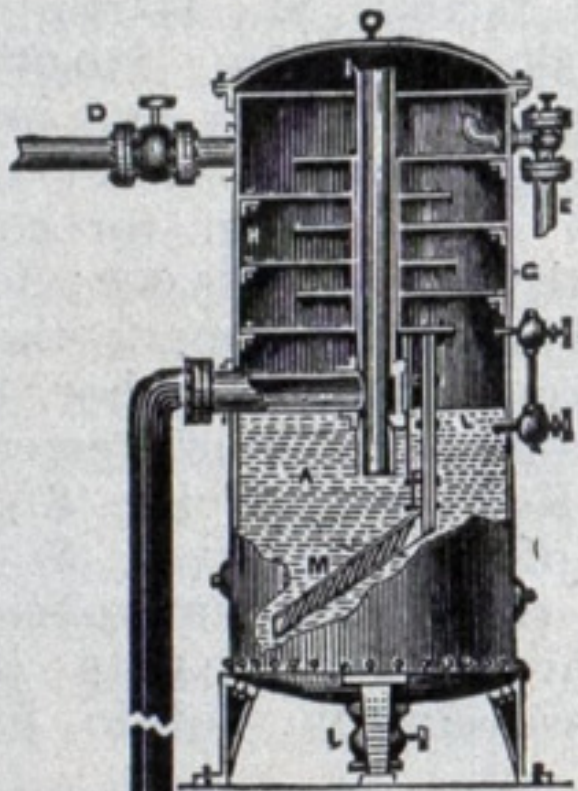
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Brazil, Thomas Maytham and Chili.

Mitchell Transportation Co.'s steamer  
Hendrick S. Holden.

Minnesota Iron Co.'s steamer Presque Isle.  
American Steel Barge Co.'s steamer Alex.  
McDougall.

Lake Michigan & Lake Superior Trans-  
portation Co.'s steamer Manitou.

Bessemer Steamship Co.'s steamers S. F.  
B. Morse and Douglas Houghton.

American Transportation Co.'s steamers  
John Harper and Alex. Nimick.

Red Star Line's steamers Robert Mills and  
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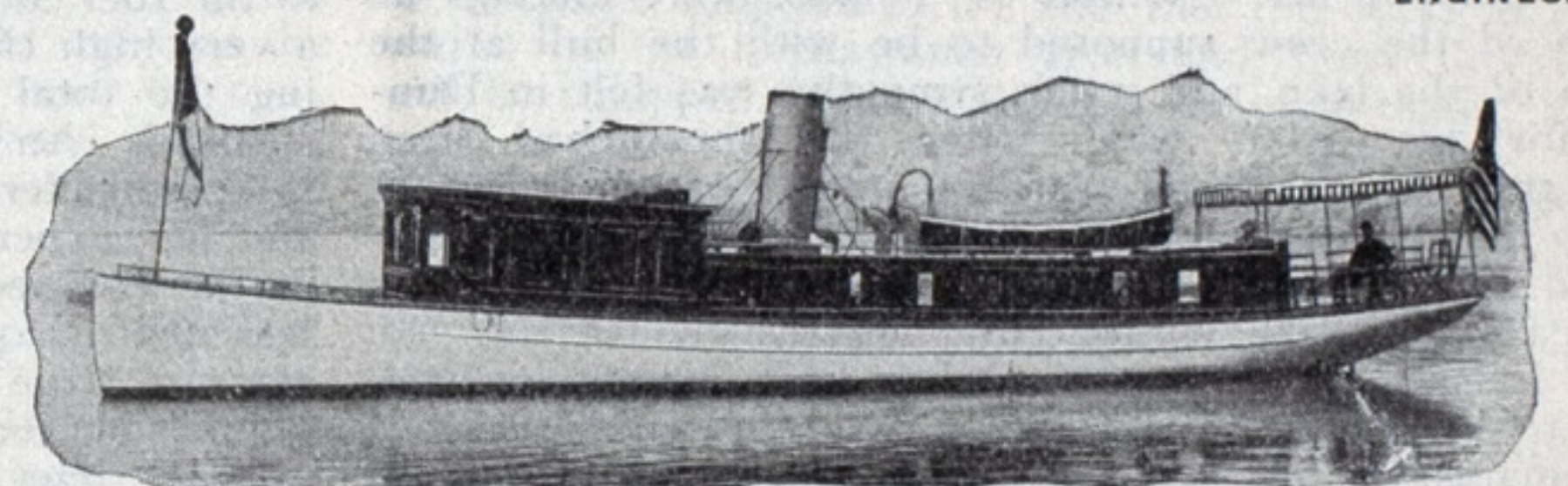
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## TOLEDO.

## Special Correspondence to The Marine Record:

Joseph L. Skeldon, an old time vessel captain, who sailed the schooners Maize and Lyman Casey in the '70s, died at his home here Wednesday morning. He brought out the David Dows, the only five-masted schooner ever on the lakes.

The Craig Ship Building Co., acting for New York parties, recently tried to purchase the steamer Puritan from the Graham & Morton line, but in spite of the fact that they offered \$250,000 spot cash, the offer was turned down. The steamer runs between Chicago and Holland, Mich., and there has been considerable talk as to whether the route was paying or not; but it is very evident that it is, for J. H. Graham, president of the G. & M. Line announces that the boat is on theroute to stay. The Puritan is 1,547 gross tons, 233 feet long, 40 feet beam and 21.9 feet deep. She was built by the Craigs in 1901.

The steamer Vera was the first big vessel to load coal here this season. She received some light repairs at Craigs, and expects to be ready to take cargo this week.

The river coal trade will open this week by the loading of the steamers Lilly and Adventure. The Hocking docks are now ready to handle business, and will soon be busy.

Orders have been received here by the Pittsburgh Steamship Co.'s fleet to be ready to sail Wednesday. It is not expected that this fleet will take coal, but will go up for ore. Last year, the trust boats took very little coal, and it is not thought the trust will go into the coal trade extensively this season.

There has been considerable talk of late in marine circles relative to the encroachment of the Sandusky Fish Co. on the fishing grounds of the local fishing companies in the westerly end of Lake Erie. The above named company last fall received considerable unfavorable comment regarding their actions in this regard, but this spring they have made themselves more obnoxious than before, and consequently the matter was brought to an issue yesterday in Monroe. The Sandusky company has agreed to retire from this end of the lake and the entire matter was

amicably settled. There is an ancient and unwritten law that is generally respected among fishermen to the effect that when a person or company has fished in a certain territory for a certain length of time they can practically control that fishing ground to the exclusion of all others.

The steamer Harlow, which is now at the Craig Ship Building Co.'s ship yard undergoing repairs, will be one of the finest lumber craft afloat on the waters of the Great Lakes. After her exciting experience on Lake Superior last fall she was brought to Toledo and has been thoroughly overhauled and strengthened. Thirty-two tons of steel plate have been used in repairs and she is now a stronger and better boat than when she first came out. Her capacity is something over a million feet of lumber. Her cabins are a model of convenience and elegance, and everything is fitted up with a view to comfort and enjoyment. The captain's office, aft of the pilot house, the mates' room, hallways, engine room and the engineers' room, steward's room, the bath and galley are all finished in black ash and are in size and accommodations equal to the average passenger steamer. The captain's cabin and dining room are finished in California red-wood and mahogany. No liner is more tastily furnished, the carpets and curtains being in perfect harmony and in the dining room the oak buffet filled with silver and cut glass gives an air of richness to the surroundings. The vessel will be fitted with steam steering gear, capstans and hoist, and the engine will have a steam reverse gear. The Harlow will carry a four-horse power gasoline launch. The cost of the repairs and the improvements are estimated at \$28,000.

The repairs on the steamer J. C. Christie, which is at Gilmore's, are nearly completed and the steamer Fisk will also be out a few days.

The steamer State of New York came down from Detroit Monday afternoon, and took her place in the Cleveland-Toledo division of the D. & C. Line. She left again at 10 o'clock promptly, her schedule time for Cleveland. Down the Detroit river, the New York was saluted as if she were a man-of-war or Prince Henry's royal yacht. When she started, one of the car ferries saluted her, and

all of the tugs and vessels under steam took it up as she passed down the river. Even the factories on the water front joined in the chorus. In her new dress, the New York inside and out has all the appearance of a new boat. Her upper works are painted ivory white and the green of her hull is a shade lighter than it was last year. Her inside has also received considerable attention. It has been repolished and repainted throughout. In no part of the boat is there evidence of long service. Besides the general improvement in the appearance of the boat, she has been equipped with a number of modern improvements. She comes out this year with electric signals and a new steam capstan. Although this was just fifteen days earlier than she made her first trip last season, she carried ten passengers and a good cargo of package freight. Last year on her first trip, which was on April 15, she only carried seven passengers.

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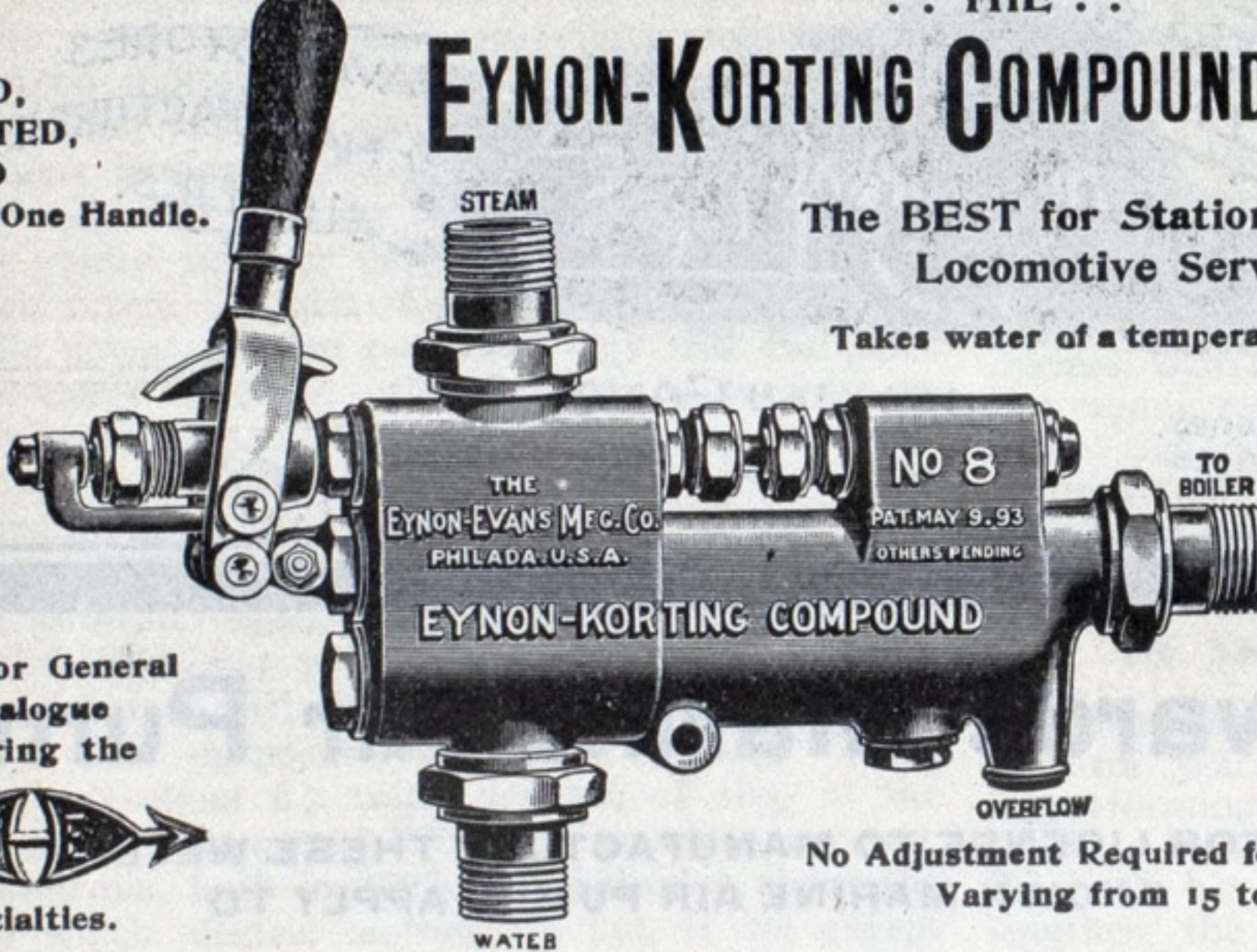
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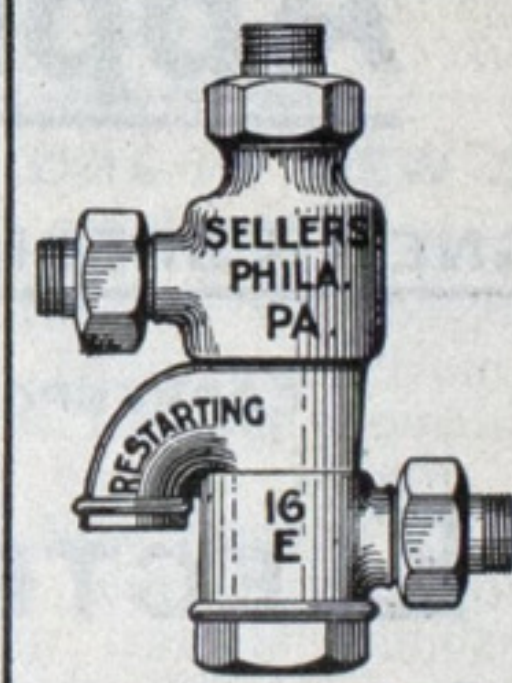
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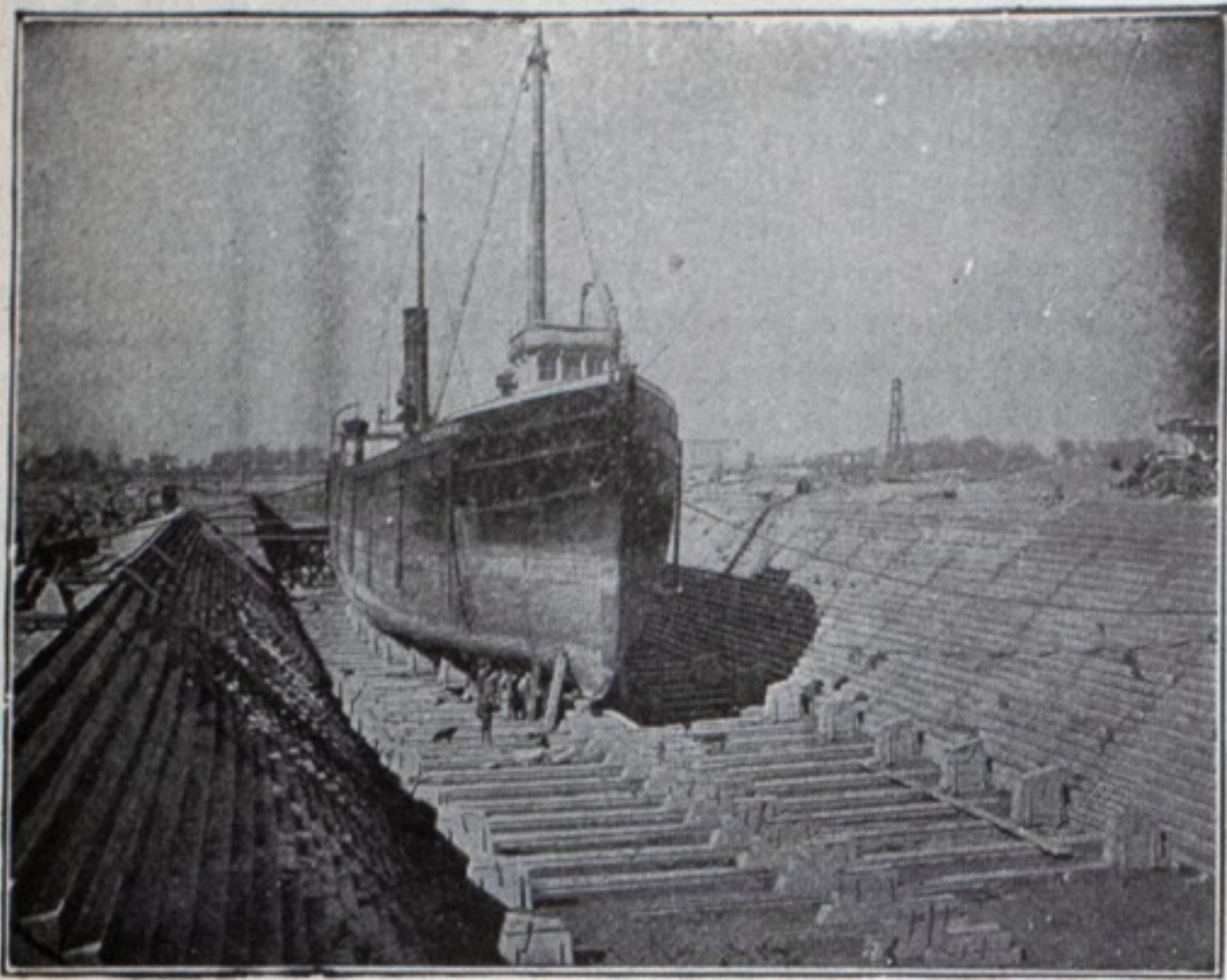
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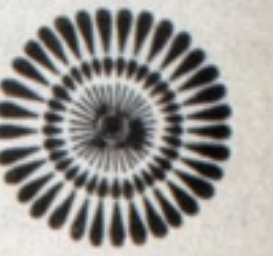
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